A CLINICAL EVALUATION OF "MOOKURATTAI ENNAI" FOR KANAKAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN

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Submitted by

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation submitted entitled **"**A **CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANAKAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN**" with the guidance of **Dr.K.SURESH M.D (S).,** in Department of Kuzhandhai Maruthuvam, National Institute of Siddha, Chennai -47, and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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CONTENTS

INTRODUCTION

INTRODUCTION

Siddha system is one of the oldest system of medicine in india.The term Siddha comes from “Siddhi” means attainment of perfection.It is an ancient traditional system of medicine developed by 18 Siddhars who glorified human beings as the highest form of birth and believed that to preserve human body is essential to achieve eternal bliss

Siddha medical literatures are in tamil and it is practiced in tamil speaking parts of India and countries like Srilanka, Malaciya and Singapore.

The Siddha system is also called Agasthiyar maruthuvam in the name of its famous exponent sage Agasthiyar.A huge number of medical works of siddha system are ascribed to him but it may be difficult at this time to sage Agasthiyar. Siddha system of medicine developed only with in the in Dravidian culture of prevedic period, and it is largely therapeutic in nature.

The Siddha medical science is based on the principles panchaboothas (the five elements) 96 thathuvas and thridosh as (three humors)

“Prevention is better than cure”

Hence a separate chapter has been described in our system,for preventing the diseeses,under the heading “Pinianugavithi”

"திண்ணமிரண்டு ள்ளே சிக்க வடக்காமற்
பெண்ணின்பா லொன்றைப் பெருக்காமல் - உண்ணுங்கால்
நீர்சுருக்கி மோர் பெருக்கி நெய்யுருக்கி யுண்பவர்தம்
பேருரைக்கிர் போமே பிணி"

- பதார்த்த குண சிந்தாமணி
- தேரையர்

Siddha system believes that every thing in the universe are made up of five basic elements earth, water, fire, air and space which also constitutes the human body and other world by substances. This system describes 96 principles constituents of human being, which include physiological, physical,moral and intellectual components of individuals, when there is any imbalance or slight deviation with these 96 phylosophical units, diseses occur. The diagnostic ostic methodology in siddha system is derived from eight fold examinations including examination of pulse, tongue, complexion, speech,

palpatory findings etc. perception has a great role in the venture that can be achieved by the sense organs, by mind, by yoga, by pain and pleasure

Children's are future citizens hence their health is of paramount importance to our nation.Care of Children is different in many aspects from adults so a separate Branch of Medicine "Balar maruthuvam" (or) "Pillaipini maruthuvam" (or) "Balavagadam" has been deals by our ancient saints siddhars.

Hence health care of children should be actually started well before the child appears as an individual in the world .when it is a zygote in the mother's womb. So, the care of a pregnant women is also a part of child care.Siddha system deals with the diseses that encounter a women during pregnancy under the heading "Pindorpathi " and also describe specific treatment for the specific diseases.

Pillaipini maruthuvam is an important branch of medical science of written by Siddhars, which deals with the diseases and treatment aspects of children.

In the text book of Balavagadam - A Siddha paediatric literature, the disease of children are broadly classified into Aga karana noigal and Pura karana noigal.

Among the Purakarana noigal "Kanakazhichal" is a commonly occurring disease in infants and children. It is a disorder of Gastro intestinal tract caused by micro organism due to poor personal hygiene and sanitation. Ultimately leads to dearangement in Tridosas and disease manifestations occur.

It has been clearly depicted in Gurunadi nool (Shanmugavelu-1987) that kanakazhichal is caused by kirumigal (micro organisms) and explained in siddha literature are more or less related to Bacillary dysentery described in modern system of medicine.

Annually, these are 165 million reported or confirmed cases of Bacillary dysentery and 1.1 million deaths world wide, predominantly in developing countries. (Ncbi.nlm nih.gov). 60% of such death occurs are seen in under 5 children.

So the author interested to take Kana kazhichal is Dissertation subject with trial medicine Mookurattai ennai which is a sample, pure herbal preparations.

This dissertation is a through study of the disease "Kanakazhichal" in 40 patients admitted in the post graduate department of Kuzhandhai maruthuvam op at Ayothidoss pandithar Hospital of the National Institute of Siddha, Chennai-47.

AIM AND OBJECTIVES

AIM AND OBJECTIVES

AIM:

To evaluate the clinical efficacy of Mookurattai ennai in the treatment of Kanakazhichal (Bacillary dysentery) in children"

OBJECTIVES:

Primary objectives:

To determine the therapeutic potential and effectiveness of the trial drug Mookurattai ennai in treating of Kanakazhichal in children.

Secondary Objectives :

- To collect the literary evidences of Kanakazhichal as per Siddha system.
- To review the scientific literatures of the disease Bacillary dysentery in respect of etiology, pathology, clinical features, treatment, complications and prognosis.
- To find out the incidence of Kanakazhichal in regard to low socio-economic condition, poor hygiene, and malnutrition.
- To findout the impact like diet, land, climatic conditions and personal hygien (Unavu, Thinai, Paruva kaalangal and Ozhukkam) in the incidence of Kanakazhichal.
- To correlate the sign and symptoms, etiological factors of Kanakazhichal with Bacillary dysentery in modern literature
- To evaluate the efficacy of trail medicine on Anti microbial activity by in-vitro methods
- To evaluate Physicochemical Analysis and Phytochemical analysis of trail drug.
- To made awareness among the patients / parents regarding this disease and its prevention.

REVIEW OF LITERATURE

SIDDHA ASPECT

REVIEW OF LITERATURES

SIDDHA ASPECT

இயல்

வயிறு கடுத்து அடிக்கடி சிறிதாயேனும் அல்லது வயிற்றுக்கடுப்பு அதிகமின்றி அளவு கடந்தேனும், சீதக்கட்டும் குருதியும் கூடியேனும் கழியும்

நோய் எண்.

Classification of Kazhichal based on various siddha literatures:-

1. In balavagadam three types of kazhichal noigal have been described.
    (i) Mantha Kazhichal
    (ii) Kana Kazhichal
    (iii) Seethak kazhichal
2. At the same time 7 types of Kazhichal noigal was explained along with treatment in Balavagadam-Siddha paediatric text book,
    1. Veppu kazhichal
    2. Ratha kazhichal
    3. Adhisara kazhichal
    4. Kaduppu kazhichal
    5. Pachilai kazhichal
    6. Vida kazhichal
3. In T.V Sambasivam pillai dictionary, the following Kazhichal noigal have been mentioned.
    1. Seedha kazhichal
    2. Ratha kazhichal
    3. Sala kazhichal
    4. Soba kazhichal (Diarrhoea with great weakness and exhaustion)
    5. Veeludai kazhichal (white diarrhea)
    6. Vayettu kazhichal(Gastrogenic diarrhea)
    7. Sangara kazhichal(Diarrhea with various symptoms)

4. In Athma Rakshamantham literature also called Vaidhya Saara sangirakam fifteen types of kazhichal classified.

"சொல்லுகிறேன் கழிச்சல்வகை கோவிந்தன்னை
கழிமாந்த கழிச்சலனச் செப்பலாகும்
வெல்லுகிறேன் பாற்கழிச்சல் வரட்கழிச்சல்
வீறான வாந்தியின்தன் கழிச்சலாகும்
மல்லுகிறேன் கணக்கழிச்சல் மாந்தகழிச்சல்
புகழான ஆமத்தின் கழிச்சலாகும்
கொல்லுகின்ற சலக்கழிச்சல் வெதுப்புக்கழிச்சல்
கூறான ரத்தத்தின் கழிச்சலாமே"

"ஆமேதான் அதிசாரக் கழிச்சலாகும்
அப்பனே பொருமலின் கழிச்சலாகும்
போமேதான் சீரத்தக் கருப்புவாகும்
பொல்லாத கழிச்சலென்று நாமெய்தும்
தாமேதான் பச்சிலைக் கழிச்சலாகும்
சார்வான விடக்கழிச்சல் சாற்றலாகும்
நாமேதான் சொன்னோமே கழிச்சல் மார்க்கம்
நவின்றிட்டார் பாலருக்கு நவின்ட்டாரே"

1. Suzhimantha kazhichal
2. Paal kazhichal
3. Varat kazhichal
4. Vaanthi kazhichal
5. Kana kazhichal
6. Maantha kazhichal
7. Amakazhichal
8. Sala kazhichal
9. Vethuppu kazhichal
10. Rattha kazhichal
11. Athisara kazhichal
12. Porumal kazhichal

13. Ratha kazhichal
14. Pachilai kazhichal
15. Vida kazhichal

5. Two types of Kazhichal have been described in literature Pararaja sekaram balaroga nidhanam.
    1. Vayitru kazhichal
    2. Vayitrulaivu
6. In Jeeva Rakshamirtham, the following kazhichal noigal are given
    1. Rattha kazhichal
    2. Sala kazhichal
7. In the literature noi nidhanankal, ten types of kazhichal noigal are given.
    1. Moola kazhichal
    2. Vatha kirani
    3. Pitha kirani
    4. Seetha kirani
    5. Vatha pitha kirani
    6. Pitha Sethuma kirani
    7. Vatha seetha kirani
    8. Thontha kirani
    9. Vayettru Kaduppu
    10. Vayettru kothippu
8. According to Agathiyar Vaidya Kaaviyam 1500, Kazhichal is classified into six types.

" கழிச்சலென்ற கிராணியிலே விதமாறப்பா
கண்ட பித்தம் அனல் வாதம் வாயுவாகும்
அழிச்சலென்ற பேதிக்கும் பார் பெலம் போகுமே
தெழிச்சலென்ற வாயுதான மேகபேதி
திறமான மூலத்தின் தோடபேதி
பழச்சலென்ற சங்கான பேதியொன்று
பாரப்பா வாயுவொன்று ஆறுமாச்சே"

1. Vatha kazhichal
2. Pitha kazhichal
3. Kaba kazhichal
4. Moola kazhichal
5. Sangana kazhichal
6. Mega kazhichal

9. Same classification has been given in Thirumoolar Vaidhyam" Karukkidai 600.

" கழிச்லென்ற கிராணி காணும் விதம் கேளு
அழிச்சிய பித்த மணல் வாத மையமாம்
செழுச்சிய வாயு தேர்ந்திவை மூன்றாலே
பழிச்சென பேதிக்கும் பார் பெலம் போகுமே"

" பெலமான மேகத்திற் பிறந்ததொரு பேதி
குலமான மூலத்திற் கொடியதொரு பேதி
சுகமான வாயுவாற் சங்கித்தொரு பேதி
வுலமானதாலும் வகுத்த முறையாமே"

From the above verses it is clear that many authors described the types of kazhichal noikal. But the author selected the dissertation topic Kanakazhichal from Balavagadam.

Noi Varum Vazhi (Etiology)

The causes for Kanakazhichal mentioned in various siddha test are as follows:

1. Intake of the food stuffs which are easily not digestible.
2. Intake of excessive pungent and sour tasted food stuffs.
3. Taking sweets, mutton and improperly cooked food stuffs.
4. Taking medicines which are having poisonous effects (Karamarumdhugal)
5. Drinking impure water like sunaineer
6. Wandering in hotsun and exposure to cold air.
7. Living in over crowded areas.
8. Suffering from seetha suram
9. Improper treatment taken for Athisara noi .

The above mentioned causes are stated as following verses in Yugi chinthamani text book.

" மானென்ற வயிற்றில் மாதமிருக்கும் போது
மாப்பண்ட மதுரங்கள் மங்கை கோஷ்டி
உளனென்ற மாமிசங்கள் வேகாப்பண்டம்
உண்டதாற் கிராணி வந்துற்பவிக்குங் கண்டாய்

-யூகிசிந்தாமணி

தானாக உண்டாக விதத்தைக் கேளாய்
தரணிதனிற் குளிர்ச்சியுடன் விடசத்துத்தானும்
தேனாக மிகுதினி புசித்தாலும்
திரண்ட களக்கூட்டத்தில் போவதாலும்
மான சீதசுரால் காணும்போது
மகத்தான இளநோயுண்டா மென்று
கோனான நூல்தனிலே பெரியோர் சொன்னார்
கொற்றவனே யதினுடைய குணத்தைக் கேளே"

-அகத்தியர் குணவகடம்

Gurunadi book explains the causative organism and the pathogenesis of the disease Kanakazhichal.

"கேளுமினிக் கிரிமியால் வந்த கிராணியைத்தான்
கிருபையுடன் மூலத்தில் வேவு கொண்டு
நாளுமது கிருமியதின் குடலைச் சுற்றி
ரத்தமுண்டாஞ் சுரோணித்ததால் மலமுங்கட்டி
மீளுவது வாய்வு சென்று விரவித்தானும்
விரவியங்கே கலந்திருக்கில் கிருமியெல்லாம்
கேளுமது பலவிதமாய்க கழியும் பலர்
குடி கெடுத்த கிருமி செய்த கிராணிதானே"

Due to excessive heat the pathogenic microorganisms (kirumigal) multiplies in large numbers in the intestine. They make the stools dry, decomposed and producing foul smelling gases (vayu). Then it produces kazhichal.

Murkuri Gunangal (Premonitary symptoms):

Headache, Nausea and pain in the abdomen, burning sensation in the arms, tenesmus due to increased peristaltic movement are the symptoms produced in the initial stage of the disease.

Pothukurigunangal (General signs and symptoms):

- Passing of loose stools containing small amounts of microbes.
- Pain in the abdomen
- Rumbling sounds in the intestine
- Burning sensation in anal area.
- Tenesmus

Besides passing of loose stools with mucus , frequent scanty stools are present during that time intense abdominal pain and rumbling sounds in the intense is observed. Due to severe pain, the patient will be always in sitting posture. Naadi appears week and perspiration is sun.

The above mentioned features are stated in siddha maruthuvam

கணக்கழிச்சல்

"சீதங் கழியு மலங்கழியும் திரும்பிக் கெட்ட பால்போலே
போதக் கழியுங் கறித்தண்ணீர் போலுங் கையுங் கால் குளிர்ந்து
காதை யடைக்கும் வெதுப்புண்டாம் கையிற் பிள்ளை தங்காது
கோதா யிந்தக் கண்ங்கண்டால் குலவு மதன்பேர் கழிகனமே"

- பாலவாகடம்

சீதமாக கழியும் அல்லது மலமாக கழியும், இவ்விதமின்றி கெட்டுப்போன பால் போலவும் கழியும், கறித்தண்ணீர் போலவும் கழியும், கைகால் குளிர்ந்து இருக்கும். காது அடைக்கும், சுரம் காயும், பிள்ளை கையில் தங்காது போன்ற குறிகுணங்கள் காணப்படும்.

Patient may have gripping pain in the abdomen, with irritation in and around the anal region, rectal tenesmus with loose stools, pool appetite and weakness of the body due to excessive loose stools.

The same features have been described in the text Agathiyar 2000.

"இடுப்பு கடுத்து வயிறுளைந்து இளகுஞ்சீதமாற்றீந்து
முடுகக்குத்தி முக்கி துயரமுகமாய் உண்ணா முலமே கழிந்தடங்கும்
அடுந்தோரன்னந்தன்னை தேடா கறவே மெலிந்து வருந்தொடுக்கும்
வயிற்றுக்கடுப்பென்று சொன்னோந்த் செய்யும் துயர்கண்டே

- அகத்தியர் 2000

Patient having fever with abdominal pain, loss of appetite, loose motion with nerves, general weakness and shivering.

Mukkutra Verupadugal (Pathology):

According to siddha system of medicine, diseases are produced due to derangements in thridoshas (ie) vatham, pitham, kabam.

The siddha concept of pathology of kanakazhichal have been described in Thirumoolar karukkidai 600

"கழிச்சல் இராணி காணும் விதம் கேளு
அழிச்சிய பித்தம் அலைவாதம் ஐயமாம்
செழுச்சிய வாயு சேர்ந்தவை மூன்றால்
புழிச்சென பேதிக்கும் பார் பெலம் போகுமே

திருமூலர் கருக்கிடை -600

In kanakazhichal due to various causes stated above, the pitha kuttram is vitiated from its normal conditions. This is turn stimulates abanan, a type of vatha. Also saaram are affected.

Vitiated pitham along with kabam causes passage of loose stools with mucus.

Pain in the abdomen and tenesmus are produced mainly due to vitiated vayu.

Finally all the trithathus are deranged from their normal positions and produces muppini noi.

Piniyari muraimai Diagnosis:

In Siddha system of medicine, diagnosis of a disease is made up on the following principles,

1. Poriyaalarithal (Inspections)
2. Pulanaalarithal (Palpation)
3. Vinaadhal (Interrogations)

Pori are the five organs of perception namely nose, ears, tongue, skin and eyes.

Pulan are the five objects of senses namely smell, sound, taste, sensation and sight.

Poriyaalarithal and pulanaal arithal goes hand in hand with concept of examining the patients pori and pula with that of the physician's pulan and pori.

By vinaathal, the physician knows about the patients name, age, native place. Socio economic status, family history, dietic habits etc.,

It is infants or child or unable to talk (deaf and dumb) the patient history are obtained from his / her relatives or parents (informant)

Poriyaalarithal, pulanaalarithal and vinadhal are implemented through envagai thervugal.(Eight fold examination).

Envagai thervugal (Eight fold examination).

According to Siddhars Envagai thervugal is considered to the important tools of a physician.

" நாடி ஸ்பரிசம் பால் நிறம் மொழி விழி
மலம் முத்திரமிவைமருத்துவராயுதம்"

நாடி	(pulse)
ஸ்பரிசம்	(palpation)
நா	(tongue)
நிறம்	(colour of skin)
மொழி	(speech)
விழி	(eyes)
மலம்	(Stools)
மூத்திரம்	(urine)

Naadi (Pulse)

Naadi is an important observation for diagnosis and prognosis. Naadi is responsible for existence of life and can be felt one inch below the wrist on the radial side by means of palpation with the tips of index middle and ring fingers of the physician corresponding to Vadham, Pitham and Kapam

Normally the three humors Vadham, Pitham and Kapam exist in the ratio 1:1/2 : ¼

The derangement in these ratio leads to various diseases. It is best diagnosed by feeling the Naadi in radial artery.

Naadi Nadai in Kana Kazhizthal

"தொந்தித்த சிலேற்பனத்தில் வாய்வு கூடித்
துடர்ந்த குன்மம் நெஞ்சடைப்பு சுவாசகாசம்
வந்தித்த குரல் தனிலே வுறுத்தலீளை
வழுவழுப்பு நீருறல் மலத்தில் சீதம்
வெந்திரதம் கொழுத்தல் குத்துத்திமிர்வியாதி
வீச்சுடனே வலியெட்டுண்ட் திரட்சை பாண்டு
அந்தித்த குறுகுறுப்பு மயக்கம் விக்கல்
ஆனபல பிணியும் வந்தடறுந்த தானே"

Deranged Kabam with Vaayu produces the stools mixed with mucus. Naadi Nadai for the disease Kiraani may also responsible for Kana Kazhichal

"சிறப்பான பித்ததில் வாதி நாடி
சேரிலுறுந்த தாது நட்டமுதர பீடை
உறைப்பாகச் செரியாமைக்குன் மஞ்சூலை
யுற்ற சுரங்கராணி வயிற்றிரைச்சல் மந்தம்
அறைப்பான ஓங்கார புறனீற்ககோவை
ஆயாச மிரக்க மொடு மயக்க மூர்ச்சை
முறைகாய்வு விஷ வீக்கம் மூலவாய்வு
முரடான நோய் பலவுமுடுகும் பண்பே"

In Pitha vaadham Kiraani is produced. .If the deranged pitham combined with vatham, the kirani will produced.

When there is aggrevated Vadha Naadi the disease Kriraani is produced.

"வாதமெனும் நாடியது தோன்றில் வெப்பு
சீதமந்தமொடு வயிறு பொறுமல் திறட்சி வாயு
சீதமுறுங்கிறாணி மகோதரம் நீராமை
திரள்வாய்வு சூலை வலிகடுப்பு தீரை
நீதமுருங் கிருமிகுன்மம் அண்டவாதம்
நிலையும் நீர்கரிச்சரங்கள் தந்து மேகம்
பேதகமா முதரபிணி மூலரோகம்
பேச வெகுபிணிகளுமே பொருளதாமே"

Naa (Tongue) :

In the examination of tongue ,colour, coating wetness or dryness, deviation, fissures. Variation in taste, condition of teeth and gums are carefully noted.

In Kana Kazhichal coated tongue shows indigestion and loss of appetite and sometimes pallor may be noted.

Niram (colour):

Colour of a human body may indicate the physique type like vatham, pitham kabam and thridhodas. Cyanosis, pallor, yellowish, discolouration of the body also observed through this.

In Kana Kazhichal there is no colour changes in the body.

Mozhi (Speech):

In the examination of mozhi , the pitch of voice (high or low), laughing, slurring, speech in hallucination , crying, breathlessness or wheezing and incompleteness while talking may be noted.

In KanaKazhichal mozhi may not be affected.

Vizhi (Eyes):

Both sensory and motor disturbances are noted. Colour, inflammation, ulceration, sharpness of vision, lacrimation, response of pupil to light may also be noted.

In KanaKazhichal pallor of eyes sometimes noted.

Sparisam (Skin):

By sparisam , the temperature of skin (heat or cold), smoothness, roughness, hardness, sweat, dryness, swelling, tenderness, ulcers and pigmentation can be examined

In Kana Kazhichal raised body temperature may be present some times.

Malam (faeces):

In the examination of malam , Niram(colour), Nurai(froth), Erugal(solid), Elagal(Semi solid or liquid), quantity(increased or decreased), smell can be noted. Other

examinations like diarrhea, presence of blood or mucus or undigested food particles in stools and odour can also be noted.

In KanaKazhichal the stool is liquid or semisolid, large or scanty in quantity, greenish or brick red or dark brown in colour, sometimes it gives offensive odour containing blood or mucus.

Moothiram (Urine):

In the examination of urine, colour, odour, quantity of urine, the presence of froth, deposits, blood, and pus abnormal constituents such as sugar, protein etc. and frequency of urination can also be noted.

In KanaKazhichal the quantity of urination may be slightly deminished.

Neerkuri:

வந்த நீர்க்கரியெடை மனம் நுரை எஞ்சலென
றைந்திய லுளவை யறைகுது முறையே

-சித்த மருத்துவாங்க சுருக்கம்

According to this verse, the general features of urine or niram, edai, manam, nurai, enjal.

- ✓ Niram indicates the colour of the urine voided
- ✓ Edai indicates the specific gravity of the urine
- ✓ Manam indicates the smell of the urine voided
- ✓ Then nurai indicates the frothy nature of urine voided
- ✓ Then enjel indicates the quality of urine.

Collection of urine for Neikuri

" அருந்துமா றிரதமும் அவிரோத மதாய்
அக்கல் அலர்தல் அகாலவூண் தவறிந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக்கலசத் தாவியே காது பெய்
தொருமுகூர்த்தக் கலைகுட்படு நீரின்
நிறக்குறி நெய்குறி நிருமித்தல் கடனே"

Prior to the day of neerkuri examination, the patient asked to take a regular and balanced diet without any derangement in amount and quality. The patient is allowed to have a good sleep. In the next day early morning , the first voided urine is collected in a glass contained for analysis.

The examination should be carried out in one and half hours. A drop of Gingelly oil is dropped into a vessel containing the urine and kept in the bright light in a calm place without shaking. The derangements of three thathus is studied by the nature of oil on the surface of urine.

" அரெவென நீண்டிடின் அஃதுவெ வாதம்
ஆழிபோற் பரவின் அஃதுவெ பித்தம்
முத்தொத்து நிற்கின் அஃதுவெ கபம்"

If oil spreading like snake a indicates Vadham
Oil spreading like ring it indicates Pitham
Oil floating as pearl then it indicates kabam

In Kana Kazhichal oil spreads like a snake or pearl and indicating of vaadham and kabam.

Complications:

If the above diseases are associated with Kiraani it may leads to a fatal outcome.

"பாண்டு பிரமேகம் பன்வாத சூலைகுன்மம்
வேண்டா ஷயஞ்சன்னி வெண்சோபை- னீண்ட
அதினீரே காமாலை யானபிணி தம்மு
ளதிசாரமா காதறி"

- கண்ணுசாமியம்

"சன்னியதி சாரஞ் சாருங் கிராணி குன்மம்
உன்னிய சயகாசம் உட்காய்ச்கல் - துன்னியே
போக்கும் விடசோபை பொல்லாத நீரிழிவில்
வீக்கங் கூடாதென விள்"

- கண்ணுசாமியம்

"சன்னி விட சோபைசார் குன்மம் நீரிழிவு
துன்னுங் கிராணி சுரம் பேதி பன்னுபிர

மேகம் சயமிவரற்றுள் மூச்சு விக்கல் மேல்வீக்கம்
ஆகிலுயிர் போமறி"

- கண்ணுசாமியம்

" உண்டாகும் பேதிதான் உக்கிரமாய்க் கண்டால்
உத்தமனே குடலுக்குள் துவாரங் கண்டு
நன்றாக குடல் சவ்வுத் தாபிதமே கண்டு
நிலமான ஏரலில் தான் சீக்கட்டி கொள்ளும்
பண்டான இரணமுலர்ந்து குடற்சுருங்கி நாக்கால்
பளிச்சென்று மலபந்தம் உண்டா மப்பா
சிண்டான சிலெட்டுமச் சவ்வு அழுகிப்போனால்
சிறப்புடனே சுரப்புக் கண்டு இறப்பான தானே"

From the above verses , it is clear that severe diarrhea leads to perforation and inflammation of the colon, Liver abscess, constipation and obstructions. Sometimes it may ends fatally.

Prognosis:

Kana Kazhichal is a curable disease with proper medicine at proper time.If it is not treated with proper medicine, it may leads to severe abdominal discomfort, ulceration of colon causing passage of excessive amount of stools with mucus, Pulse appears weak, perspiration may seen.Eyes become sunken and dryness of tongue may present. Sometimes it may ends in fatal condition (Shanmugavelu 1988, kuppusamy mudhaliyar1987).

Differential Diagnosis:

மாந்த கழிச்சல்

" வாந்தி பிராந்தி மூர்ச்சையதாய் வாய்ந்து குரலுஞ் சீணித்து
காய்ந்து மேனி வெதுவெதுப்பாய்க் கைகால் குளிர்ந்து வலியுண்டாம்
சேர்ந்து கழிவு மலந்தானும் சீர்கெட்டிருக்கும் பலவிதமாய்
போந்த மாந்தக் கழிச்சலிது பொல்லாதெனவே புகன்றெனரே"

- பாலவாகடம்

வாந்தி, மயக்கம், மூர்ச்சை, குரல்கம்மல், உடல் காய்ந்து வெதுவெதுத்தல், கைகால் குளிர்ந்திருத்தல், வலித்தல், மலம் சேர்ந்திருந்து பல விதமாக கழிதல், குழந்தை சரியான

நிலையிலாமற் பலவித துன்பத்தை அடைதல் ஆகிய குறிகுணங்கள் காணும் இது மிக கொடியதாகும்.

ஆமக்கழிச்சல்

"உண்ட பாலெதிரெடுக்கும் உடல்பல முழக்கங் காட்டும்
கண்டுமே ரத்தஞ்ச் சுரமிகுந்த் திருக்கு மேனி
கண்டுசேர் மொழியுந்த் தாழ்ந்து ந்காலொடு கையுனீத்து
விண்டிடி லாம மென்று விளம்பினர் முனிவர் தானே "

உண்டபின் பால் எதிரெடுத்து வாயாலெடுக்கும், உடல் அதிகமாக மாறுதலடையும். உடலில் செந்தீர் மிக சுண்டும். சுரம் அதிகமாகும். குரல் தாழ்வடையும். கை கால் அசைவற்று கிடக்கும். இவை ஆமக்கழிச்சலின் குணங்கள் ஆகும்.

வயிற்றுளைவு:

"வந்திடும் வெதுப்புக்காயும் வயிறுளைந்திடுதீன் செல்லால்
துரத்திடு முறங்க வொட்டாதுள மலங்கழிந்து சோறும்
பொருத்தொலாங் கழலும் புன்போற் பொருக்கொணா நடுகங்கூறல்
பொருத்திடுங் கழிச்சல்சீதம் வெறுவயிற்றுளைவிதாமே"

Increased body temperature, abdominal cramps, pain present in all major joints, shivering followed by frequent loose stools may also be observed in the disease Vayittru Ulaivu.

Kanakazhichal should also be differentiate from Vadha Kazhichal, Pitha Kazhichal, Kaba Kazhichal, Mukkutra Kazhichal and oozhi Noi.

Maruthuvam(Treatment):

"மூன்றிலொன்ற யர்ந்ததை முன்னர் அறிந்து
முந்தியதனை யொழித்திடு மருந்திடு
தணியும் நோயின் தந்திரமிதுவே
பேணிக் கணித்திடின் பிறவாய் பின் குணம்"

In Siddha system of medicine, the principle of treatment is to bringing back the vitiated thathus to their normal position.

Line of Treatment:

1. In the disease Kana Kazhichal , the vitiated Kaba kutram and keelnokku kaal (Abanan) should be brought to their normal positions.
2. Specific medicine for arresting the stools with blood or mucous.
3. A large number of medicines are stated in different literatures. Among them an economical and efficacious medicine is 'Kana Kanakazhichal".It is administered once a day.

Diet Regimen:

Cow's butter milk, buffalo's butter milk and goat's milk are useful in Kana Kazhichal.

"வீக்க மகோதர முள் வீறுகுன்மம் பாண்டு பித்தந்த்
தாக்கு மருந்திட்ட ததிசாரமோடு - கூக்குரலே
மாறத் திரிதோஷ மந்த மணற்றாகம்போம்
விறாவின் மோறுக்கு மெய்"

- பதார்த்த குணசிந்தாமணி

"தாகங் கிராணி கணக்கழிச்சல் காமாலை
ஆகங் குடை புழுவு மற்றுப்போ - மோகமில்லாத்
தேவாமிர்த முமாஞ் சீர் மானிடர் தமக்கு
மூவாமருந்தெருமை மோர்"

- பதார்த்த குணசிந்தாமணி

"வெள்ளாட்டுப்பாலுக்கு மேவிய நற்றீபனமாந்த்
தள்ளாடு வாத பித்தஞ் சாந்தமாம் -உள்ளிரைப்புச்
சீதமதிசாரஞ் சிலேஷ்ம மறும் புண்ணாறும்
வாத கிலேசமும் போமாய்ந்து"

- பதார்த்த குணசிந்தாமணி

" வறகு சோறுட நல்லெண்ணெய் வைத்த நீர்ச் சோறு மோரும்
தரமிகு மிரச வாழை தாங்கிய கனியு நன்றாம்
புரமிகு முசுட்டைக்கீரை பொருந்திய கறியுனன்றாம்
ஊரமிகு மோருங்கூடி யுண்டிடி லுளைவு போமே"

-பரராச சேகரம் பால ரோகநிதானம்

பத்தியம்

" நெற்பொரியைத் திண்றால் நெடுங்தாகம் வாந்தி மந்தம்
மற்பித்தம் வாத மத மூர்ச்சை - பற்பலவாம்
பேதியருசியிவை பேருலகை விட்டொழியும்
சாதிமட மயிலே சாற்று"

-குணபாடம் மூலிகை வகுப்பு

Riceflakes is useful for to reduce thirst nausea and vomiting in dysentery mainly useful in Kana Kazhichal if dehydration present.

காராணிக் கீரை காட்டுப் பறங்கியிலை
பேராம் பெரும் பயற்றின் பேரிலைகள். சீரார்
அகத்தியருங் கத்தரிக்காய் ஆயிழையே மீன்கள
பகைத்ததிருக்க பேதிதரும் பார்"

- பதார்த்த குண சிந்தாமணி

காராமணிக்கீரை, காட்டு பறங்கியிலை, பெரும்பயறு இலை அகத்திக்கீரை, கத்திரிக்காய், மீன்கள் ஆகிய பொருட்களை நீக்க வேண்டும்.

Line of Treatment:

In Siddha system of medicine, the principle of treatment bringing back the vitiated thathus to their normal position

1. In the disease KanaKazhichal , the vitiated Kaba kutram and keelnokku kaal (Abanan) should be brought to their normal positions.
2. Specific medicine to be given for arresting the loose stools with blood or mucous.

MODERN ASPECT

MODERN ASPECTS - BACILLARY DYSENTERY

DYSENTERY

Dysentery is an acute inflammation of the large intestine characterized by diarrhoea with blood and mucus in the stools.

Dysentery results from entero invasive micro organisms like that bacteria ,fungi and protozoa penetrate through the mucosa and cause inflammation of intestinal wall .

Bacteria;

- Shigella (S. Sonnei, S. flexneri, S.boydi, S. dysentriae)
- E.coli (Enterotoxigenic, Enteropathogenic)
- Salmonella
- Staphylococcus
- Camphylobacter

Protozoa;

- Entamoeba histalitica
- Giardia lamblia etc

Dysentery is mainly Classified into two types;

1) Bacillary dysentery
2) Amoebic dysentery

In this dissertration study, the author is discussing about bacillary dysentery.

BACILLARY DYSENTERY:

Bacillary dysentery is an acute infection of the bowel caused by the organisms belonging to the genus shigella. This disease is more common in children than in adults.

Shigella is nonmotile, gram negative bacilli belonging to the family Enterobacteriaceae and consists of four main pathogenic groups.

1. S. dysenteriae (Group A)
2. S. Flexneri (Group B)
3. S. Boydii (Group C)
4. S. Sonnei (Group D)

The genus is characterized by its ability to invade the intestinal epithelial cells and to produce highly potent toxins that irreversibly inhibit eukaryotic cells protein synthesis by a specific enzyme action.

Epidemiology:

Bacillary dysentery is endemic all over the world. It occurs in epidemic form wherever there is a crowded population with poor sanitation. Epidemics in civilian communities are associated with poverty.

Infection with shigella occurs most often during summer and during rainy seasons in tropical climates. Both sexes are equally affected and in endemic among school going children in tropical countries. It is most common in poor hygienic places.

S. dysenteriae occurred in south India in the years 1974-78 and in the eastern parts of India and Bangladesh in mid 1980.

Mode of transmission:

The only sources of infection are human beings. The mode of transmission may be as follows;

1. Direct through contaminated finger hands to mouth infection (Faeco oral route).
2. Through contaminatd water and food or drinks.
3. Through fomites such as door handles, water tapes, lavatory seats.
4. Through flies which may transmit the infection as mechanical vectors.
5. Though contaminated water when used to irrigate or wash vegetables.
6. The spread is boosted by the low level of personal hygiene and environmental sanitation level.

Pathogenesis:

Transmission is through fecal-oral and is remarkable for the small number of organisms that may cause disease (10 ingested organisms cause illness in 10% of volunteers, and 500 organisms cause disease in 50% of volunteers). Shigella bacteria invade the intestinal mucosal cells but do not usually go beyond the lamina propria. Dysentery is caused when the bacteria escape the epithelial cell phagolysosome, multiply within the cytoplasm, and destroy host cells. Shiga toxin causes hemorrhagic colitis and hemolytic-uremic syndrome by damaging endothelial cells in the microvasculature of the

colon and the glomeruli, respectively. In addition, chronic arthritis secondary to S. flexneri infection, called reactive arthritis, may be caused by a bacterial antigen; the occurrence of this syndrome is strongly linked to HLA-B27 genotype, but the immunologic basis of this reaction is not understood.

Infection occurs by ingestion.The minimum infective dose is low as few as 10,000 bacilli being capable of ini tiating the disease probably because they survive gastric acidity better than other enterobacteria.Their pathogenic mechanisms resemble those of Enteroinvasive E.coli.

Bactremia may occur on severe infections, particularly in malnourished children.

Morphology:

In severe bacillary dysentery the colonic mucosa becomes hyperemic and edematous, enlargement of lymphoid follicles creates small projection nodules.Within the course of 24 hours, fibro suppurative exudates first patchily then diffusely covers the mucosa and produces a dirty grey yellow pseudo membrane.

The inflammatory reaction within the intestinal mucosa builds up the mucosa becomes soft and friable and irregular superficial ulcerations appear.

Histologically, there is predominantly mononuclear leukocytic infiltrate within the lamina propria ,but the surfaces of the ulcers are covered with an acute, suppurative, neutropilic reaction accompanied by congestion, marked edema, fibrin deposition and thrombosis of small vessels.

Incubation period:

The incubation period is generally between 2-7 days.

Clinical features:

After ingestion of shigella there is an incubation period of several days before symptoms. Characteristically severe abdominal pain, fever, anorexia, passing mucoid consistency of loose stools occurs.

The stools may be watery or mucoid large volume initially evolving into frequent bloody mucous stools.Physical examination may show abdominal distension and tenderness, hyperactive bowel sounds and tender rectum on digital examination.Chronic

diarrhea is uncommon except in malnourished infants.Only about 10% patients have diarrhea persisting for more than 10 days.

Neurological findings are among the most common extra intestinal manifestation of bacillary dysentery occurring in 40% of hospitalized infected children.

They are,

- Convulsion
- Lethargy
- Headache
- Confusion
- Nuchal rigidity
- Hallucination

The causes of neurological findings are not known. Hypocalcemia and hyponatraemia may be associated with seizures in a small number of patients. Most important complication is dehydration with its attention risk of renal failure and death.

Symptoms and Complications:

The main symptom of dysentery is frequent near-liquid diarrhea flecked with blood, mucus, or pus**.** Other symptoms include:

- Sudden onset of fever and chills
- Abdominal pain
- Cramps and bloating
- Flatulence (passing gas)
- Urgency to pass stool
- Feeling of incomplete emptying
- Loss of appetite
- Weight loss
- Headache
- Fatigue
- Vomiting

Other symptoms may be intermittent and may include recurring low fevers, abdominal cramps, increased gas, and milder form of diarrhea. The patient may feel weak and anemic, or lose weight over a prolonged period (emaciation).

Mild cases of bacillary dysentery may last 4 to 8 days, while severe cases may last 3 to 6 weeks. Amoebiasis usually lasts about 2 weeks.

Bacillary dysentery symptoms begin within 2 to 10 days of infection. In children, the illness starts with fever, nausea, vomiting, abdominal cramps, and dysentery. Episodes of diarrhea may increase to as much as once an hour with blood or mucus in the child's stool. Vomiting may result in rapid and severe dehydration, which may lead to shock and death if not treated. Signs of dehydration include an extremely dry mouth, sunken eyes, and poor skin tone. Children and infants will be thirsty, restless, irritable, and possibly lethargic. Children may also have sunken eyes and may not be able to produce tears or urine, the latter appearing very dark and concentrated.

Diagnosis:

Essentials of diagnosis:

- Abdominal pain with loose mucoid stools
- Fever
- Peripheral blood leucocytosis
- Stool culture

Prevention:

As bacillary dysentery is exclusively human infection transmitted by feceo oral route, control consists essentially in improving environmental sanitation.Health education with an emphysis on washing hands with soap after each defecation is important.

Decontamination of water supplies, use of sanitary latrines, protection of food preparation and its storage can all reduce the primary and secondary transmission of shigella.

Breast feeding decreses the risk of symptomatic shigellosis and its severity in infants who acquire infection despite breast feeding.

- ✓ Eradication of vectors such as houseflies. Hygienic practices such as keeping food covered filtration and boiling water etc.
- ✓ Since chlorination of water in effective iodine realizing tablets, Globaline tablets are convenient and effective.
- ✓ Avoiding consumption of raw vegetables can reduce the incidence of amoebiasis.

- ✓ Those cooking for large number of people must periodically undergo stool examinations for detecting asymptomatic cyst passers who are the reservoirs of infection.
- ✓ Proper sanitary disposal of human excreta.
- ✓ Maintaining good personal hygiene like hand washing with soap after defacation.These factors are effective in the prevention of disease

DRUG REVIEW

LITERATURE REVIEW - INGREDIENTS OF THE STUDY DRUG

INGREDIENTS OF MOOKURATTAI ENNAI (Internal Medince)

- மூக்குரட்டை
- சாரணை
- முடக்கற்றான்
- முத்தெருக்கன் செவி
- ஓரிதழ் தாமரை
- செப்பு நெருஞ்சில்
- மயிலிறகின் சாம்பல்
- ஆமணக்கு நெய்

<u>செயல்முறை</u>

மூக்குரட்டை, சாரணை, முடக்கற்றான், முத்தெருக்கன் செவி, ஓரிதழ் தாமரை, செப்பு நெருஞ்சில், ஆகிய ஆறு பொருட்களின் சாறும் வகைக்கு ஒரு படி (1.3 லிட்) வீதமெடுத்து, அத்துடன் ஒரு படி (1.3 லிட்) ஆமணக்கு நெய் சேர்த்து ஒரு மண் சட்டியில் ஊற்றி இவற்றுடன் ஒரு பலம் (40 கிராம்) மயிலிறகுச் சாம்பல் சேர்த்துக் காய்ச்சிக் காலையில் மட்டும் ஒரு உச்சிக்கரண்டியளவு நோய் வன்மைக்குத் தக்க நாளளவு கொடுத்து வந்தால் கழி கணங்களின் வகைகள் எல்லாம் தீரும்.

அளவு : உச்சிக்கரண்டி அளவு (1.6ml)

ஆயுட்காலம் : 1 ஆண்டு

ஆதார நூல் : பாலவாகடம்

ஆசிரியர் : மரு.பொன். குரு சிரோன்மணி

பதிப்பாசிரியர்கள் : மரு.க.ச.முருகேச முதலியார்

மரு.பொன். குரு சிரோன்மணி

பதிப்பு : 1933

Borrhaeavia diffusa (Mookurattai)

Trianthema decandra (Saranai)

Cardiospermum calicabum
(Mudakatran)

Elytraria acants
(Mutherukkan sevi)

Ionidium suffruticosum
(Orithal thamarai)

Indigoferra ennaphylla
(Seppu nerunjil)

Ricinus communis
(Amanakku ennai)

Peacock feather
(Mayilaragu sambal)

1.மூக்குரட்டை(Borrhaevia Diffusa)

வேறுபெயர்

புட்பகம், மூக்குறட்டை, இரத்தபுட்பிகா

Scientific Classification

Kingdom	-	Plantae
Division	-	Angiosperms
Order	-	Caryophyllale
Family	-	Nyctaginaceae
Genus	-	Boerhavia
Specices	-	B.Diffusa

Organoleptic Characters:

Taste	-	Kaippu
Potency	-	Veppam (heat)
Pirivu	-	Kaippu (Pungent)

Action:

- Expectorant
- Diuretic
- Laxtive
- Refrigerant
- Anthelmintic
- Emetic

பொதுகுணம்

"சீத மகற்றுந் தினவடக்குங் காந்திதரும்
வாத வினையை மடிக்குங்காண்- பேதி
கொடுக்குமதை உண்டாக்காற் கோமளமே! பித்தம்
அடுக்குமே மூக்குரட்டை யாய்"

Chemical Constitunents:

Isoflavonoids knows as rotenioids, flavonoids, flavonoid glycosides, xamthones, pusine Nucleoside, lignans, ecdysteriods and steroids.

Mechanical uses:

- Reduces Swelling – Anti inflammatory
- Useful in anemia, early stage of liver disorders
- Useful in cardiac disorders
- Excellent diuretic – High blood pressure requiring diuretic action,
- Relieves sputum
- Improves digestion strength

Published Research Paper:

Borrhaevia diffuse: A review on its phyto chemical and pharmacological profile shows Immunomodulations, Hepatoprotective,Antifibrinolysis, anticancer activity, antidiabetic activity, anti inflammation and diuretics.. Antimicrolial activity (against E.Coli, Bacillus subtilis, staphyococus and salmonella typhi) Anticonvulsant activity. Antiproiferative, Antiesrtogenic activity.

2.சாரணை (Trianthema decandea)

வேறுபெயர்

சாட்டரணை, சாறுண்ணை, சாறுவேளை, வெள்ளைச் சாரணை, வெள்ளைச் சாரடை, சத்திச்சாரணை, சத்திச்சாட்டரணை, விருச்சிகம்

Scientific classification:

Kingdom	-	Plantae
Division	-	Angiosperms
Order	-	ficoideae
Family	-	Aizoaceae
Genus	-	Trionthema
Species	-	decandra

Organoleptic Characters:

Taste	-	Kaippu
Potency	-	Veppam (heat)
Pirivu	-	Kaarpu (purgent)

Action:-

- Expectorant
- Laxative
- Diuretic

பொதுகுணம்

"சீதஞ் சலதோடந் தேமல்த ழும்பு குன்மம்
வாதஞ் சிறுசிரங் வன்மேகம் - ஓதரிய
காசமுதல் நோயெல்லாங் கான்சா றடைக்கிழங்கால்
நாசமுறு மென்றே நவில்"

Chemical Constituents:

Ecdysterone, 3 Acetylaleusitotic acid, 5,2' – dihydeoxy – 7 – methoxy – 6,8 Dimethyl flavones, leptorumol, 3,4 – dimethoxy cinnamic acid, 5 – hydeoxyl 2-methoxybenzaldehyde, P- methoxybenzonic acid, beta cycamin.

Medicinal Uses:-

Useful in hepatitis, authuma, suppression of the menses, ground up with milk and given internally consider specific in orchitis. Decoction of root bark is apesient, Juice of leaves dropped into the nostrils to relieve one side headache.

Research Studies:-

Trianthema decandra, A review on its Phytochemical and Phyamacological profile shows anti inflammatory, wound healing, antihyperglycemia, hepatoprotective, antioxidant, - international Journal of Engineering science and Technology.

3.முடக்கற்றான் (Cardiospermum Calicacabum)

வேறுபெயர் - முடர்குற்றான், முடக்கறுத்தான்

Scientific Classification:-

Kingdom	-	Plantae
Division	-	Angiosperms
Order	-	sapindales
Family	-	sapindaceae
Genus	-	cardiospermum
Species	-	C.Halicacabum

Organoleptic character:

Taste	-	Bitter
Potency	-	karppu
Pirivu	-	veppam

Action:

- Diuretic
- Laxative
- Stomachic
- Rubefacient
- Antivatha
- Nutritive

பொது குணம்

சூலைப் பிடிப்பு சொறி சிரங்கு வன்கரப்பான்
காலைத் தொடுவாய்வுங் கன்மலமும் - சாலக்
கடக்கத்தா னோடிவிடுங்க காசினியை விட்டு
முடக்கற்றான் றன்னை மொழி

Research Studies:

Antipyretic activity	Ashavv– Indian J EXP Biol 1999 April 37(4), 411-4 , (Pubmed indexed)
Anti-diarrhoeal	Chandraprakash,kuppast - Interenational Journal of Pharmacy pharmacutial science ISSN 0974-1491.
Antibacterial	R.Vinoth R.Manivasagaperumal - Inf J.Res. Biol -2012
Anti-diarrheal	(1) S.Sasidharani, (2) Lylatha Z Zuraini (3) S.Suryani
	Indian Journal of – medknow Pharamology
	Indian Journal of – medknow Pharamology

4. ஓரிதழ் தாமரை (Ionidium Suffrutiocosum)

வேறுபெயர்- சூரியகாந்தி, இரத்தபுருஷ்

Organoleptic Characters:

Taste	-	Enippu
Potency	-	Thatpam
Pirivu	-	Enippu

Action:

- Nutritive
- Aphrodisiac

பொது குணம்

தாதுவையுண்டாக்குந் தனிமேகத்தைத் தொலைக்கும்
ஆதரவா மேனிக் கழ்குதருஞ் - சீதம்போம்
சீரிதழ்த் தாமரைவாழ் செய்ய மடவனமே?
ஓரிதழ்த் தாமரையை யுண்

Chemical Constituent:

- Tannins
- Flavonoids
- Terpenoids
- Saponins
- Cardiac glycosides
- Amino acids
- Alkaloid

Medicinal uses:

Orithal thamarai choornam is given in the dose of 2 to 4 grams twice a day with milk for megham diseases or gonorrhoeal diseases in ladies,leukorrhoeaa, increases sexual power or libido,improve the quality of semen. In women, during parturition enchances milk secretion.

The samoolam is crushed squeezed well in water and this extract is used to wash the eyes in the conditions like itching in the eyes, pain, conjunctivitis etc.

This herb is a Kayakalpam and regular intake of this acts as a tonic and relieves ulcer and headache when externally applied.

An infusion or decoction of the roots is given for urinary infection.

5. செப்பு நெருஞ்சில்: (Indigofera enneaphylla)

Synonyms: Bremontiera,Vaughania

Scientific classification:

Kingdom	:	plantae
Order	:	Fabales
Family	:	Fafaceae
Subfamily	:	Faboidea
Genus	:	Indigofera
Species	:	I.enneaphylla

Organoleptic character:

Taste	:	enippu
Potency	:	Thatpam.
Pirivu	:	Enippu

Medicinal Uses :

It is used for the treatment of numerous ailments ranging from hemorrhoids to scorpion bites.

Protective effect against carbon tetrachloride induced hepatotoxcity.

It is used in the treatment for ovarian and stomach cancer.

Chemical constituents:

- Indican
- Glucoside
- Crude proteins
- Calcium
- Research article:

Indian Journel of pharmacology by Hemalatha 2001- Antidiarrhoral activity.

6. முத்தெருக்கன் செவி : (Asarum europium)

வேறுபெயர் : நிலக்கடம்பு, குயக்காலம், குயகாயம், கோகனம்

Scientific classification:

Kingdom	:	plantae
Order	:	Angiosperm
Family	:	Aristalochiaceae
Genus	:	Asarum
Species	:	A.europaeum

Organoleptic character:

Taste	:	Karppu
Potency	:	Veppam
Pirivu	:	Karppu

Action:

- Diuretic
- Carminative.
- Emetic

Chemical Constituent:

- Volatile oil
- Tannic acid
- Resin
- Gluten
- Asartin

Medicinal uses:

It cures jaundice, headache, tooth ache and neurological disorders

Its cures respiratory problems,indigestion,bronchitis..

7. மயிலிறகு : Peacock feather (Pavo cristatus)

Kingdom	-	Animalla
Class	-	Aves
Order	-	Galliformes
Family	-	Phasianidae
Subfamily	-	Phasianinae
Genus	-	Pavo

Chemical Constituent:

- Copper
- Iron
- Manganese
- Zinc
- Melanin pigment

Action:

- Antiemetic
- Mild Antitussive
- Mild Bronchodilatory
- Hiccup suppressant.

Medicinal uses:

It cures nausea, voiting, hiccup, and respiratory problems.

Apinch of the powder of the peacock feather if taken with honey to remove poison from the body.

8.ஆமணக்கு நெய் (Ricinus Communis)

வேறுபெயர்- ஏரண்டம், சித்தரம், தலரூபம

Scientific Classification:-

Kingdom	-	Plantae
Division	-	Angiosperms
Order	-	malpighiales
Family	-	Euphorbiaceae
Genus	-	Ricinus
Species	-	Ricinus communis

Organoleptic Characters:

Taste	-	Kaippu
Potency	-	veppam
Pirivu	-	Karppu

Action

- Anti- inflammatory
- Laxative
- Emollient
- Anti- Bacterial

பொது குணம்

"யேரண்டத்துநெய் யென்பது டற்கொடு
சீரண்டத்தணி செய்திரு நிசமே"

"ஆமணக் கெண்ணெய் தன்னை யணிநில மறியக் கேண்மின்
பூமணச் சந்துதோறும் பொருந்திய வாதம் போக்கும்
தீமந்தந் தானும் போக்குந் திகழ்வுடன் விரைவு முண்டாம்
தீமனக் குடலில் வாதஞ் சேர்குட லேற்றம் போமே"

Chemical Constituent:

- Ricinoleic Acid
- Oleic acid
- Stearic acid
- Palmitic acid
- linoleic acid
- dihydroxy stearic acid

Mecditional Uses:-

- Castor oil (Ricinus communis) raises body heat and acts as a purgative.
- It cures gastritis and gunmam, if taken internally.
- It gives gold complexion to the body and improves spermatogenesis.
- It recitifies the intestinal disorders.
- It removes burning sensation in the five sense organs, if taken internally.
- Castor oil gives many soothing effect to the body

MATERIAL AND METHODS

MATERIALS AND METHODS

Kanakazhichal is one of the common GIT disorder in children. In our NIS OPD, a 3-5% of cases are approaching Kuzhandhai Maruthuvam department daily with the Symptoms of *Kanakazhichal* .Hence it was proposed to study about the disease. . A Protocol was prepared and submitted before IEC of National Institute of Siddha. The IEC , approval No:NIS/IEC/9/2014-15/19-26-08-2015. The trial registred in Clinical trial Registry of India with Reg .No.CTRI/2017/02/007952. After obtaining approval from the committee, the clinical study on *Kanakazhichal* (Bacillary Dysentery) in children and the drug of choice *Mookurattai ennai was* carried out as per the protocol..

40 cases were selected from the OPD of KuzhandhaiMaruthuvam Department, National Institute of Siddha. They were treated with the trial drug with *Mookurattai ennai and* observed for prognosis clinically.

PRECLINICAL STUDIES:

PHYSICO CHEMICAL ANALYSIS OF MOOKURATTAI ENNAI

The physicochemical analysis of the test drug *MOOKURATTAI ENNAI* was carried out as per WHO guidelines **(**Anonymous 1998). The test procedures were done at Sathyabama university , Chennai. Since the form of the drug is in powder the parameters such as) Loss on Drying at 105'c, Total ash, Acid unsoluble ash , Water soluble Extractive Alcohol Soluble Extrative, PH was done using Quality control procedures mentioned in AYUSH protocol for testing guidelines.

Percentage Loss on Drying

10gm of test drug (weight equivalent to oil) was accurately weighed in evaporating dish. The sample was dried at 105^{o}C for 5 hours and then weighed.

Determination of Total Ash

3 g of test drug (weight equivalent to oil) was accurately weighed in silica dish and incinerated at the furnace a temperature 400 ºC until it turns white in color which indicates absence of carbon. Percentage of total ash will be calculated with reference to the weight of air-dried drug.

Determination of pH

Sample being oily in nature the direct litmus evaluation method was adopted to check the pH of the sample.

Determination of Iodine value

About 20 gm of oil was transferred into Iodine flask. To which 10 ml of chloroform was added and warmed slightly and cooled for 10 minutes. Followed by this about 25 ml of Wiji's solution was added in the same flask and shaken well. The flask was allowed to stand for 30 mins and refrigerated for a hour. About 10 ml of KI solution was added to this and titrated against 0.1 N Sodium thiosulphate solutions until the appearance of yellow colour. 1 ml of starch indicator was added and again titrated against the sodium thiosulphate solution from the burette. Disappearance of blue colour indicates end point. Repeat the above procedure without taking sample and note the corresponding reading for blank titration.

Determination of saponification value

About 2 gm (weight equivalent to oil) of test sample was transferred into the round bottomed flask. To this about 20 ml of 0.5 N alcoholic KOH solutions was added to the round bottomed flask. Repeatthe same procedure without taking the sample for blank titration . Reflux both sample and blank round bottomed flasks for 1 hour. After reflux, allow both the round bottomed flasks to cool. Titrate the samples using 0.5 N HCl with phenolphthalein indicator. The disappearance of pink indicates the end point.

PHYTOCHEMICAL ANALYSIS

Sample Preparation

Mookuattaioil (MO) was extracted with ethanol and the extract was subjected to the following analysis

1. **Test for alkaloids:**

   Mayer's Test: To the extract, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

2. **Test for coumarins:**

   To 1 ml of extract, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color.

3. **Test for saponins:**

   To 1 ml of the extract, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

4. **Test for tannins:**

   To the extract, ferric chloride was added, formation of a dark blue or greenish black color showed the presence of tannins.

5. **Test for glycosides- Borntrager's Test**

   Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of choloroform is added and shaken, choloroform layer is separated and 10% ammomia solution is added to it. Pink colour indicates presence of glycosides.

6. **Test for flavonoids:**

   To 0.1ml of the test sample about 5 ml of dilute ammonia solution were been added followed by addition of few drops of conc. Sulfuric acid. Appearance of yellow color indicates the presence of Flavonoids.

7. **Test for phenols:**

   Lead acetate test: The extract was taken; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

8. **Test for steroids:**

   To the test solution 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns

into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

9. **Test for Quinones:**

   The extracts were treated separately with Alc. KOH solution. Appearance of colors ranging from red to blue indicates the presence of Quinones.

10. **Test for Cyanins**

    A. **Aanthocyanin:**

       To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100 C. Formation of bluish green colour indicates the presence of anthocyanin.

    B. **Betacyanin:**

       To 2 ml of the leaf extract, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100 C. Formation of yellow colour indicates the presence of betacyanin.

11. **Test for Carbohydrates - Benedict's test**

    To 0.5 ml of test drug about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

12. **Test for terpenoids:**

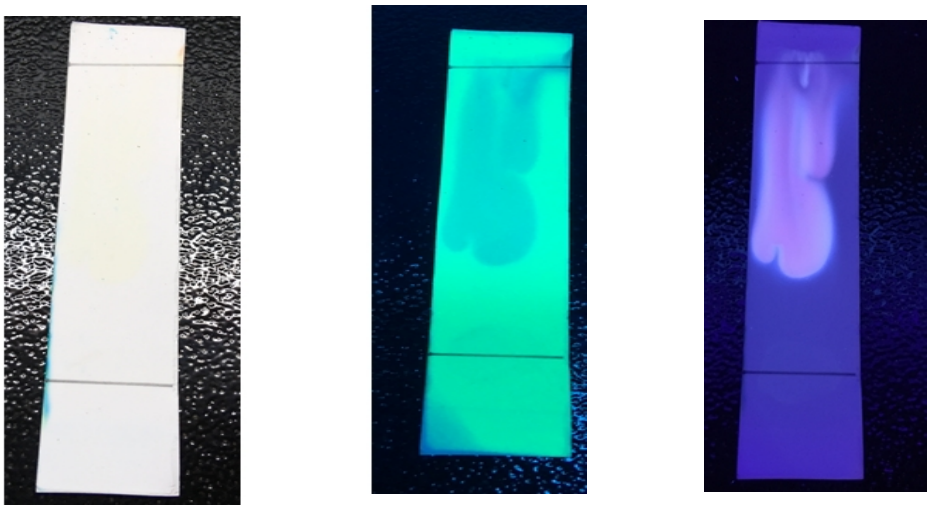
    Salkowski test: 5ml of extract was mixed in 2ml of chloroform, and concentrated sulphuric acid was carefully added to form a layer. A reddish brown colouration of the interface indicates the presence of terpenoids.

TLC ANALYSIS

Test sample MO was subjected to thin layer chromatography (TLC) as per conventional one dimensional ascending method using silica gel 60F254, 7X6 cm (Merck) were cut with ordinary household scissors. Plate markings were made with soft pencil. Micro pipette were used to spot the sample for TLC applied sample volume 10-micro liter by using pipette at distance of 1 cm at 5 tracks. In the twin trough chamber with different solvent system A. Ethyl acetate:Methanol:Water (7.5:1.5:1) B. chloroform: Methanol: Water (7:3:4). After the run plates are dried and was observed using visible light Short-wave UV light 254nm and light long-wave UV light 365 nm

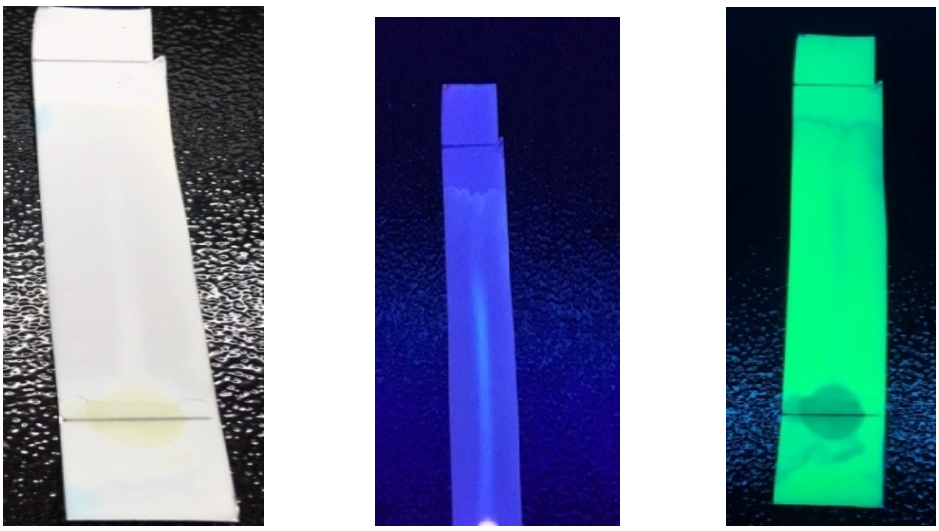
Solvent System Ethyl acetate: Methanol: Water (7.5:1.5:1)

Visible Short UV Long UV



Solvent System B. chloroform: Methanol: Water (7:3:4)

Visible Short UV Long UV



High Performance Thin Layer Chromatography Analysis

HPTLC method is a modern sophisticated and automated separation technique derived from TLC. Pre-coated HPTLC graded plates and auto sampler was used to achieve precision, sensitive, significant separation both qualitatively and quantitatively. High performance thin layer chromatography (HPTLC) is a valuable quality assessment tool for the evaluation of botanical materials efficiently and cost effectively. HPTLC method offers high degree of selectivity, sensitivity and rapidity combined with single-step sample preparation. In addition it is a reliable method for the quantitation of nano grams level of samples. Thus this method can be conveniently adopted for routine quality control analysis. It provides chromatographic fingerprint of phytochemicals which is suitable for confirming the identity and purity of medicinal plant raw materials.

Chromatogram Development

It was carried out in CAMAG Twin Trough chambers. Sample elution was carried out according to the adsorption capability of the component to be analysed. After elution, plates were taken out of the chamber and dried.

Scanning

Plates were scanned under UV at 366nm. The data obtained from scanning were brought into integration through CAMAG software. Chromatographic finger print was developed for the detection of phytoconstituents present in each extract and Rf values were tabulated.

HPTLC Chromatographic condition

TLC Chromatogram of MO

ANTI- MICROBIAL ACTIVITY OF MOOKURATTAI ENNAI

Disc-diffusion method:

The antibacterial activities of the sample MO were carried out by disc diffusion method. The concentrations of the test compounds were used at the concentration of 500, 1000 and 200 µg. The target microorganisms were cultured in Mueller–Hinton broth (MHB). After 24 h the suspensions were adjusted to standard sub culture dilution. The Petri dishes containing Muller Hinton Agar (MHA) medium were cultured with diluted bacterial strain. Disc made of Whatman No.1, diameter 6 mm was pre-sterilized and was maintained in aseptic chamber. Each concentration was injected to the sterile disc papers. Then the prepared discs were placed on the culture medium. Standard drug Ciprofloxacin (5µg) was used as a positive reference standard to determine the sensitivity of each microbial species tested. Then the inoculated plates were incubated at 37^{o} C for 24 h . The diameter of the clear zone around the disc was measured and expressed in millimeters as its anti-microbial property. The results were depicted

GCMS- Analysis Report Mookurattai ennai

GC-MS Plays a key role in the analysis of unknown components of plant origin. GC-MS ionizes compound and measures their mass numbers. Ionization method includes EI (Electron Ionization). The EI method produces ions by colliding thermal electrons

emitted from a filament with sample gas molecules. This method provides high stability in ionization and obtained mass spectra show good reproducibility. The EI method provides good result for quantitative analysis as well. Quantitative analysis with GC-MS, in which only ions specific to the compounds are measured, is highly selective method without interfering components. Gas chromatography Technique involves the separation of volatile components in a test sample using suitable capillary column coated with polar or non-polar or intermediate polar chemicals. Elite-1 column (100% Dimethyl polysiloxane) is a non-polar column used for analysis of phyto-components. Elite -5 column (5% phenyl and 95% methyl polysiloxane) is an intermediate column and also used for the estimation of Phytochemical. An inert gas such as hydrogen or nitrogen or helium is used as a carrier gas .The compounds of test sample is evaporated in the injection port of the GC equipment and segregated in the column by absorption and adsorption technique with suitable GC programme.

BIOCHEMICAL ANALYSIS

Biochemical Analysis of Mookurattai ennai was done at the Biochemistry lab at National Institute of Siddha, Chennai by the method of Kolkate.

Preparation of Extract:

5ml of sample was taken in a 250ml clean beaker and added with 50ml of distilled water. Then it is boiled well for about 10 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100ml with distilled water. This preparation is used for the qualitative analysis of acidic/basic radicals and biochemical constituents in it.

Procedure:

Test for Silicate

A 2ml of the sample was shaken well with distilled water.

Action of Heat:

A 2ml of the sample was taken in a dry test tube and heated gently at first and then strong.

Action of Heat:

A 2ml of the sample was taken in a dry test tube and heated gently at first and then strong.

Ash Test:

A filter paper was soaked into a mixture of extract and dil. cobalt nitrate solution and introduced into the Bunsen flame and ignited

Test for Acid Radicals

Test for Sulphate:

2ml of the above prepared extract was taken in a test tube to this added 2ml of 4% dil ammonium oxalate solution

Test for chloride:

2ml of the above prepared extracts was added with 2ml of dil.HCl is added until the effervescence ceases off.

Test for Phosphate:

2ml of the extract were treated with 2ml of dil. ammonium molybdate solution and 2ml of con. HNo3.

Test for carbonate:

2ml of the extract was treated with 2ml of dil. magnesium sulphate solution.

Test for Nitrate:

1gm of the extract was heated with copper turning and concentrated H_2So_4 and viewed the test tube vertically down.

Test for Basic radicals

Test for lead:

2ml of the extract was added with 2ml of dil. potassium iodine solution.

Test for copper:

One pinch (25mg) of extract was made into paste with con. HCl in a watch glass and introduced into the non-luminuous part of the flame.

Test for Aluminium:

To the 2ml of extract dil. sodium hydroxide was added in 5 drops to excess.

Test for Iron:

a. To the 2ml of extract add 2ml of dil. ammonium solution

b. To the 2ml of extract 2ml of thiocyanate solution and 2ml of con HNo3 is added.

Test for Zinc:

To 2ml of the extract dil. sodium hydroxide solution was added in 5 drops to excess and dil. ammonium chloride is added.

Test for Calcium:

To 2ml of the extract was added with 2ml of 4% dil. ammonium oxalate solution

Test for Magnesium:

To 2ml of extract dil. sodium hydroxide solution was added in drops to excess.

Test for Ammonium:

To 2ml of extract 1 ml of Nessler's reagent and excess of dil .sodium hydroxide solution are added.

Test for Potassium:

A pinch (25mg) of extract was treated of with 2ml of dil. sodium nitrite solution and then treated with 2ml of dil. cobalt nitrate in 30% dil. glacial acetic acid.

Test for Sodium:

2 pinches (50mg) of the extract is made into paste by using HCl and introduced into the blue flame of Bunsen burner.

Test for Mercury:

2ml of the extract was treated with 2ml of dil. sodium hydroxide solution.

Test for Arsenic:

2ml of the extract was treated with 2ml of dil. sodium hydroxide solution

Miscellaneous

Test for Starch:

2ml of extract was treated with weak dil. Iodine solution**.**

Test For Reducing Sugar:

5ml of Benedict's qualitative solution was taken in a test tube and allowed to boil for 2 minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes. The colour changes are noted.

Test for the Alkaloids:

a) 2ml of the extract was treated with 2ml of dil. potassium Iodide solution.

b) 2ml of the extract was treated with 2ml of dil. picric acid.

c) 2ml of the extract was treated with 2ml of dil. phosphotungstic acid.

Test for Tannic Acid:

2ml of extract was treated with 2ml of dil.ferric chloride solution**.**

Test for Unsaturated Compound:

To the 2ml of extract 2ml of dil. Potassium permanganate solution is added**.**

Test for AminoAcid:

2 drops of the extract was placed on a filter paper and dried well. 20ml of Burette reagent is added**.**

Test for Type of Compound:

2ml of the extract was treated with 2 ml of dil. ferric chloride solution.

CLINICAL STUDIES

AIM

a) Primary aim :

To find out the efficacy of Mookurattai ennai in the treatment of Kana Kazhichal in children.

b) Secondary aim:

To find out the side effects of the drug, if any

Population and Sample:

The population consists of paediatric patients attending the OPD of Ayothidoss Pandithar Hospital, National Institute of Siddha, Chennai-47.

The sample consists of 5 - 12 years age group fulfilling all the inclusion criteria and the exclusion criteria.

Sample size : 40 Patients

Study place : OPD of Ayothidosspandithar hospital,
National Institute of Siddha, Tambaram sanatorium, Chennai – 46.

Inclusion criteria:

- Age 5 to12 years
- Sex: Both male and female children.
- Children with minimum 3 clinical symptoms such as
- Increased frequency of stool with mucous at least 3 to 4 times per day.
- Fever
- Patients with history of abdominal pain.

Exclusion criteria:

- High-grade fever
- Signs of severe dehydration.
- Extra intestinal complication.
- Patient's with any other serious illness.
  Chronic diarrhea / malabsorption.

Withdrawl criteria:

- Exacerbation of symptoms
- Intolerance to the drug & development of adverse reactions during drug trial.
- Poor patient compliance & defaulters.
  Patient turned unwilling to continue in the course of clinical trial.

Study Enrollment:

- In this study, patients reporting at the NIS OPD with five or more clinical symptoms of blood with mucous in the stools, fever with chills, abdominal pain, and rumbling noise in the intestine. It will be examined clinically for enrolling in this study based on the inclusion and exclusion criteria.
- The patients who are to be enrolled would be informed about the study, trial drug, possible outcomes and the objectives of the study in the language and terms understandable to them.
- After ascertaining the patients' willingness, informed consent (Form II) would be obtained in writing from their parents in the consent form.
- All these patients will be given investigator phone number to report easily if any complications arise.
- Complete clinical history, complaints and duration, examination findings-- all will be recorded in the prescribed Case sheet proforma and clinical assessment forms separately. Screening Form- I will be filled up. Form III, Form –IV and Form –V will be used for recording the patient's history, clinical examination of symptoms and signs and laboratory investigations respectively.
- Patient will be advised to take the trial drug and appropriate dietary advice would be given by dietary form according to the patients' perfect understanding

Conduct of the Study:

The trial drug *"Mookurattai ennai"* is given for 3 days. For OP patients before and after treatment the clinical assessment will be done and prognosis is noted on 4th day. For IP patients the drug is provided and prognosis is noted and clinical assessment will be done on 1st day itself.

Data Managment:

After enrolling the patient in the study, a separate file for each patient will be opened and all forms will be filed in the file. When study patient visits OPD during the study period, the respective patient file will be taken and necessary recordings will be made at the assessment form or other suitable form.The screening forms will be filed separately.

The Data recordings will be monitored for completion and adverse event by HOD and data logical recording and completeness will be monitored by statistician (SRO-Statistics)). All forms will be further scrutinized in presence of Investigator by (SRO-Statistics) for logical errors and incompleteness of data before entering onto computer to avoid any bias. No modification in the results is permitted for unbiased report.

Any missed data found in during the study, it will be collected from the patient, but the time related data will not be recorded retrospectively All collected data will be entered using MS access software onto computer.

CLINICAL ASSESSMENT (By modified Vesikari Scoring System):

The Clinical Assessment will be done by using modified Vesikari Scoring System shown in the following system

Nature of DYSENTERY	Scoring		
	1	2	3
Maximum number of stools per day	1-3	4-5	>6
Dysentery duration (Days)	1-3	4-5	>6
Stools consistency	Semisolid stools without mucus	Loose watery stools with mucus without pain.	Loose watery stools with mucus associated with pain.
Abdominal pain	No pain	Vague pain	Moderate pain to severe pain.
Temperature	37.1.38.4	38.5.38.9	≥39.0

Advese Effect/Serious Effect Management:

If the trial patient develops any adverse reaction, he/she would be immediately withdrawn from the trial and proper management will be given in OPD of National institute of siddha and the same will be reported to regional pharmacovigilance center.

Ethical Issues:

1. No other external or internal medicines will be used.
2. The data collected from the patient's informant will be recorded. The patient's informant will be informed about the diagnosis, treatment and follow-up.
3. After the consent of the patient's informant (through consent form), patient will be enrolled in the study.
4. Informed consent will be obtained from the patient's informant explaining in the understandable language to the patient's informant.
5. Treatment would be provided free of cost.
6. In conditions of treatment faliure, adverse reactions, patients will be given alternative treatment at the National Institute of Siddha with full care.

Data Collection Forms:-

Form I Screening & Selection Performa
Form II Patient information sheet
FormIII Consent form
Form IV History Perform
Form V Drug compliance
Form VI Withdrawal
Form VII Adverse reaction
Form VIII Pharmaco vigilance

PREPARATION OF THE TRIAL DRUG: MOOKURATTAI ENNEI

Authour Name : Dr.Ponkurusironmani, (Balavagadam)

Publisher Name : Dr.K.S.Murugesamuthaliyar. page no 513.Year:1933.

INGREDIENTS:

- Mookurattai (Boerhaavia diffusa) - 1 padi(1 litre)
- Saaranai (Trianthema decandra) - 1 padi
- Mudakatran (Cardiospermum halicacabum) - 1 padi
- Mutherukkan sevi (Asarum europaeum) - 1 padi
- Orithal thamarai (Ionidium suffrutiocosum) - 1 padi
- Seppu nerunjil (Indigofera enneaphylla) - 1padi
- Amanakku nei(Ricinus communis) - 1 padi
- Mayeliragu sambal (peacock feather) - 1 palam(40gram)

The required drugs will be purchased from a well reputed country shop and raw drugs are authenticated by the medicinal botanist of NIS. The medicine will be prepared in Gunapadam lab of National Institute of Siddha after proper purification. The prepared medicine will also be authenticated by the concerned Head of the Dept for its completeness.

PURIFICATION:

Mookurattai : Remove the veins of leaves

Saranai : wash it in plaint water and remove the outer skin and cut it in to pieces later dry it in shade

Mutheruken sevi: Remove the veins of leaves and wash it

Mudakkattran : Remove the veins of leaves and wash it

Oridhal Thamarai: Remove the veins of leaves and wash it

PREPARATION METHOD

In a mud pot about 1.3 lit of each juice mentioned on the ingredients are taken and mixed with 1.3 lit of castor oil. Then the ashes of the peacock feathers are mixed to it and boiled till it reaches the required consistency. Then it is stored in a clear air tight conta

DOSAGE OF DRUGS	:	**1.6ml** (od)
DURATION	:	3 days
DRUG STORAGE	:	Prepared medicine in oil form will be stored in clear air tight container.
DISPENSING	:	**1.6 ml of** Prepared medicine will be given in oil form in air tight container.

ASSESMENTS AND INVESTIGATIONS

A. Clinical assessment
B. Siddha method of assessment

A. CLINICAL ASSESSMENT

- History Taking
- Physical Examination

B. SIDDHA METHOD OF ASSESSMENT

- Nilam
- Kaalam
- Uyirthathukkal
- Udalthaathukkal
- Envagaithervgal

RESULTS

RESULTS AND OBSERVATIONS

Preclinical studies:

Physicochemical analysis of Mookurattai ennai

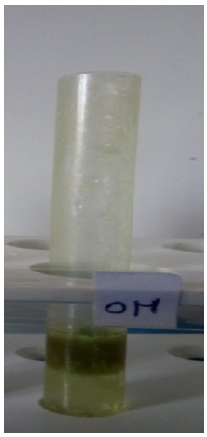
Parameter	**Observation**
Color	Greenish
Smell	Characteristic Odour
Touch	Oily
Appearance	Clear

No	**Parameter**	**Mean (n=3) SD**
1	***Loss on Drying at 105 °C (%)***	2.7 ± 0.75
2	***Total Ash (%)***	0.45 ± 0.08

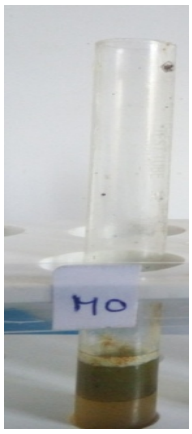
S.No	**Specific Test**	**MO**
1	***pH***	6
2	***Refractive index***	1.36
3	***Iodoine value (mg I2/g)***	109
4	***Saponification Value (mg of KOH to saponify 1gm of fat)***	204
5	***Specific Gravity***	0.9721
6	***Viscosity***	60.84 Centipoise (CP)

PHYTOCHEMICAL ANALYSIS

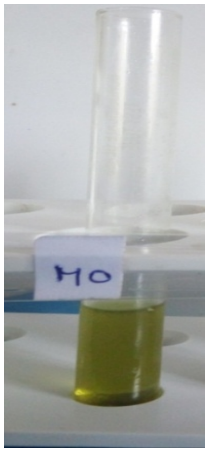
Test for Alkaloid- Mayer's reagent



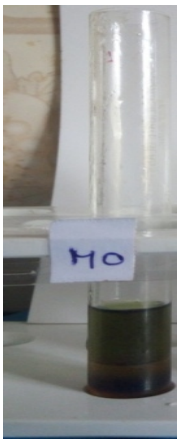
Test for flavonoid



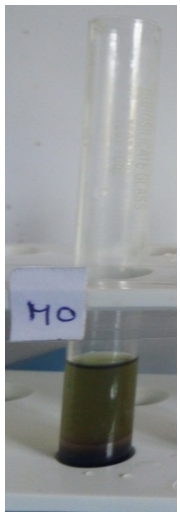
Test for Glycosides -Borntrager's Test



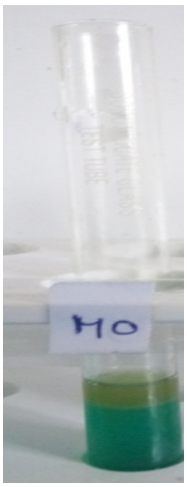
Test for Triterepnoids



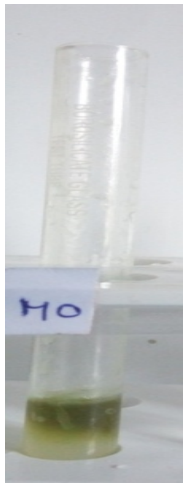
Test for Steroids - Salkowski test



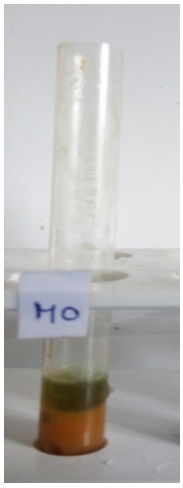
Test for Carbohydrates - Benedict's test



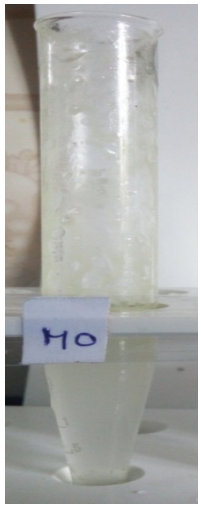
Test – Phenol- Lead acetate test



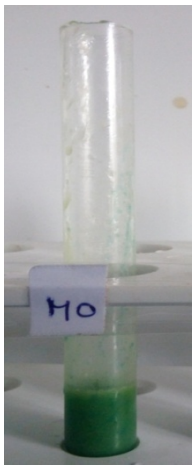
Test for tannins



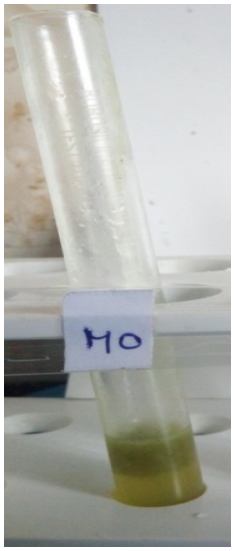
Test for Saponins



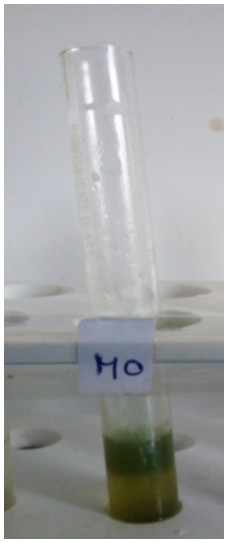
Test for Proteins (Biuret Test)



Test of Coumarins



Test for Anthocyanin



RESULT ANALYSIS

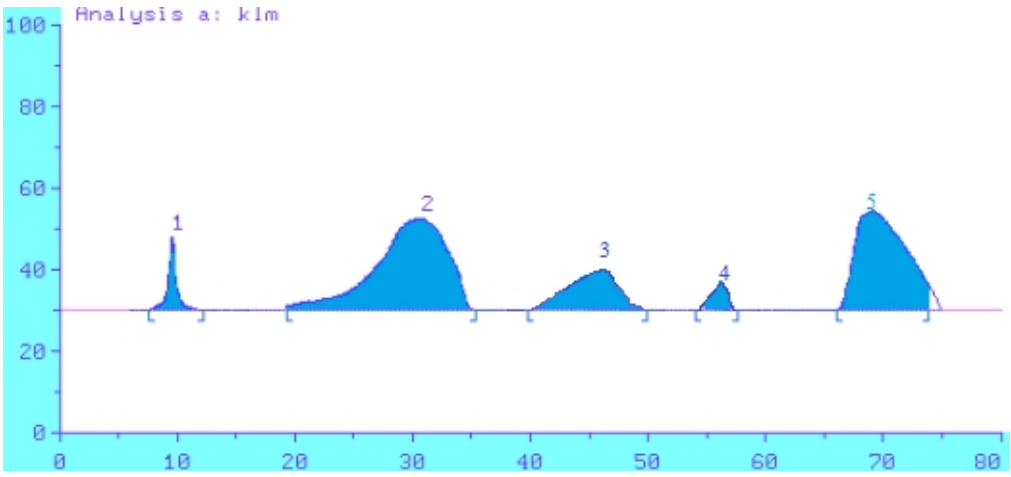
PHYTOCOMPONENTS	MO
ALKALOIDS	+
FLAVONOIDS	-
GLYCOSIDES	-
STEROIDS	+
CARBOHYDRATES	+
TRITEREPNOIDS	+
COUMARINS	+
PHENOLS	+
TANNINS	+
SAPONINS	+
PROTEINS	-
ANTHOCYANIN	-
BETACYANIN	-

\+ Indicates positive / Presence

\- Indicates Negative / Absence

Quantitative estimation of phytoconstituents of MO:

HPTLC CHROMATOGRAM OF MO



Peak Table of HPTLC finger printing of MO

S.No	Rf	Height	Area	λ max
1	0.92	18.0	1053.1	366
2	0.31	22.6	1812.4	366
3	0.24	2.6	1222.3	366
4	0.16	12.4	1027.4	366
5	0.71	24.6	1430.2	366

Pharmacological Activity of Mookurattai ennai :

Anti-Bacterial activity:

Organisms used for Anti-Bacterial Activity

S.No	Organisms
1.	*Escherichia coli*
2.	*Salmonella Typhi*
3.	*Shigellasonnei*
4.	*Vibrio Cholera*

Zone of Inhibition data of Anti-bacterial activity

Sample Code	E. Coli			*Salmonella Typhi*			*Shigellasonnei*			*Vibrio Cholera*		
Concentraion	500 µg	1000 µg	2000 µg	500 µg	1000 µg	2000 µg	500 µg	1000 µg	2000 µg	500 µg	1000 µg	2000 µg
MO	-	-	2	-	-	5	-	2	4	-	-	-
Ciprofloxacin (5µg)	23			26			22			18		

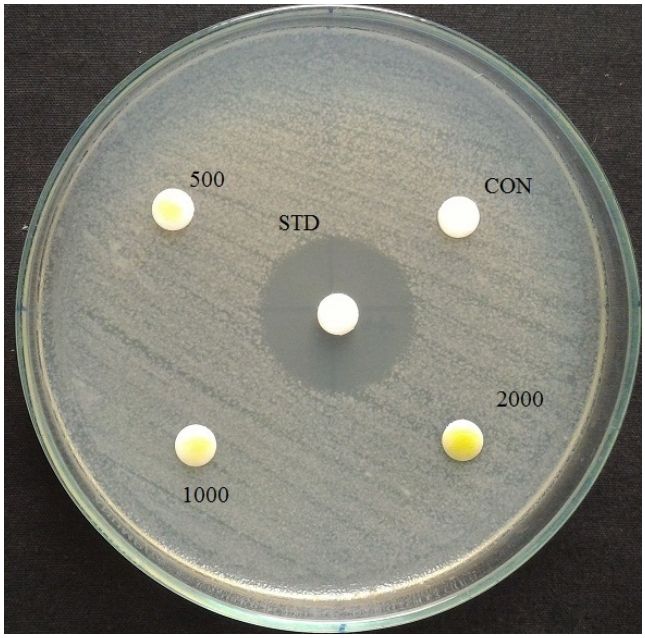
= Not active

Conclusion

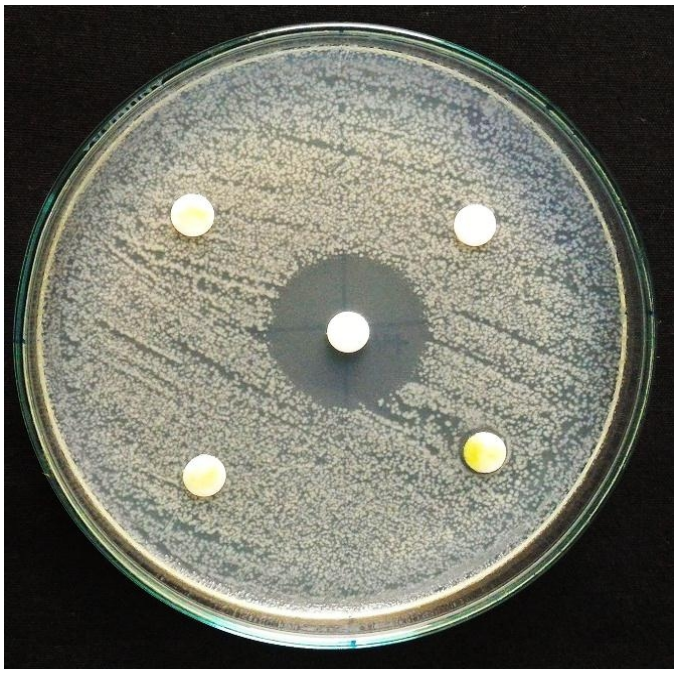
From the results of the present study it was concluded that the sample MO is effective against *Shigellasonnei , Salmonella Typhi* and Moderately effective against E-Coli and not effective against *Vibrio Cholera*

Anti-Bacterial Evaluation of MO

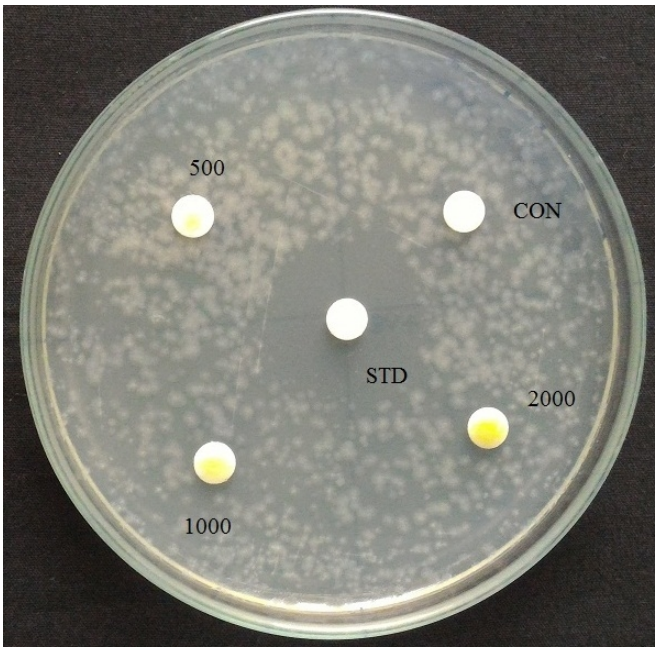
Anti- Microbial Effect of MO against *E-Coli*



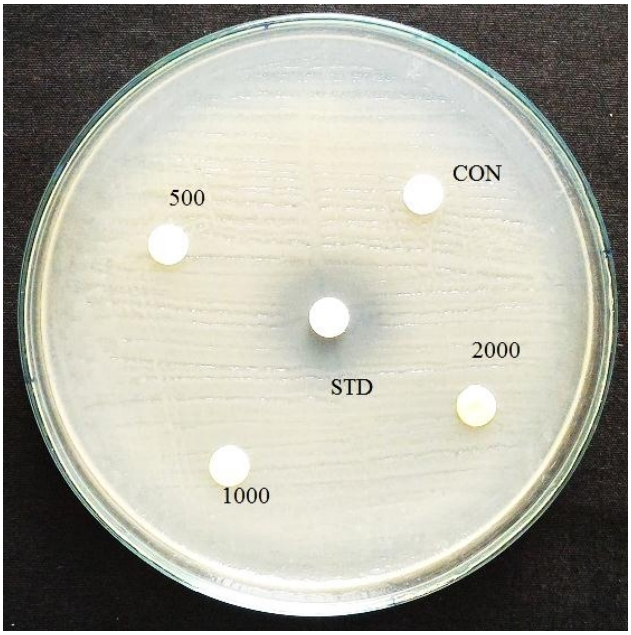
Anti- Microbial Effect of MO against Salmonella Typhi



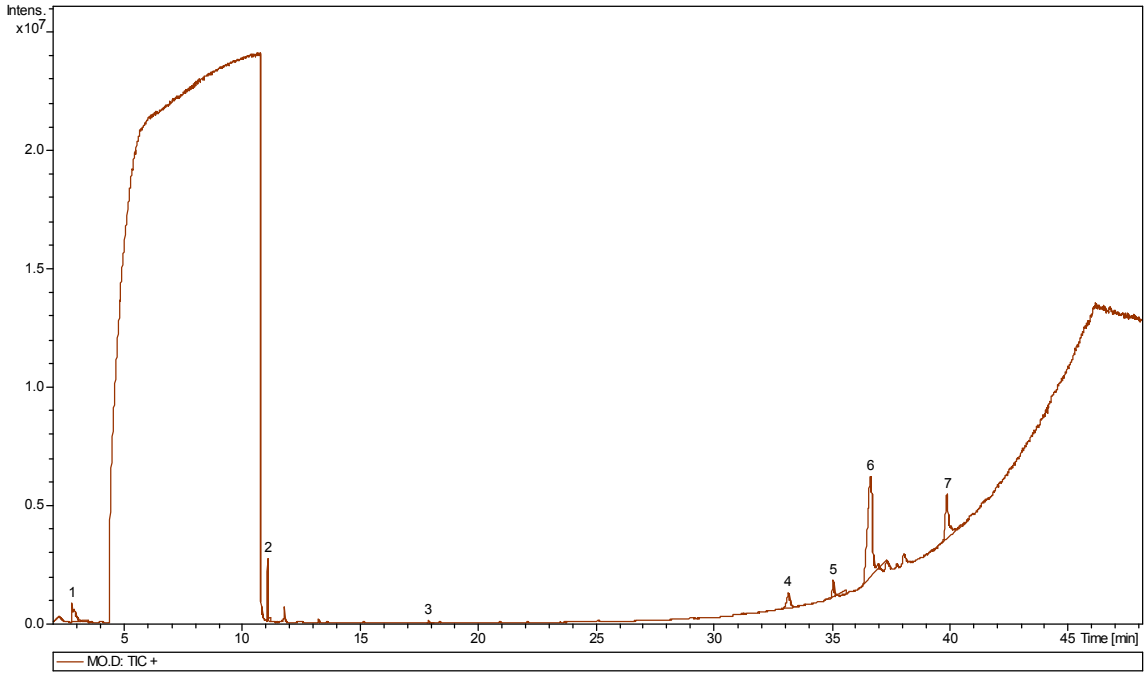
Anti- Microbial Effect of MO against Shigellasonnei



Anti- Microbial Effect of MO against Vibrio Cholera



GC-MS CHROMATOGRAM OF MO



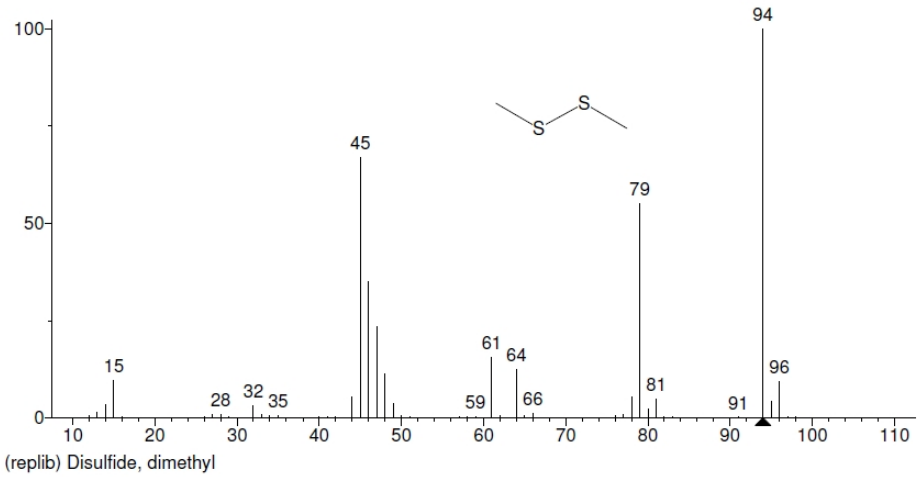
Peak Report of MO

#	RT [min]	Area
1	2.9	6.16
2	11.1	3.51
3	17.9	2.9
4	33.1	6.8
5	35.0	3.52
6	36.6	64.7
7	39.8	12.41

Report Analysis

GCMS analysis of the sample MO reveals the presence of most significant compound like Isothymol - a phenol derivative, oleic acid, Ascorbic acid derivatives and Ricinoleic acid derivatives.

PEAK 1

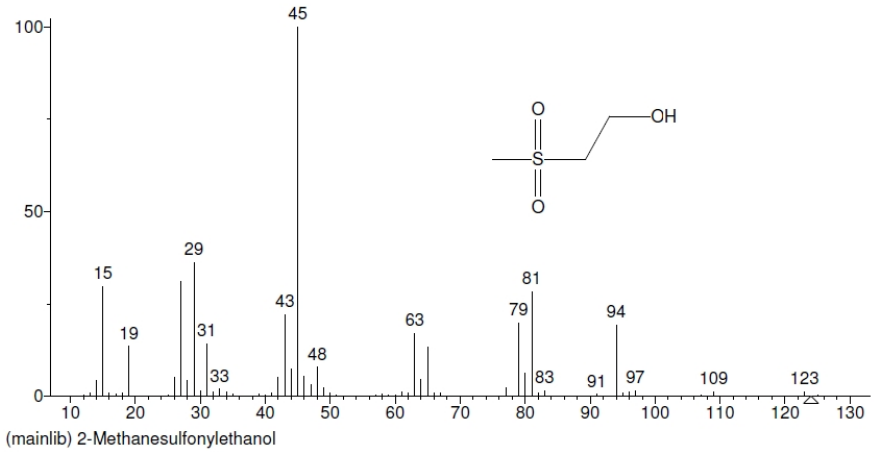


Name: Disulfide, dimethyl
Formula: $C_2H_6S_2$
MW: 94 CAS#: 624-92-0 NIST#: 19626 ID#: 12181 DB: replib
Other DBs: Fine, TSCA, RTECS, EPA, HODOC, NIH, EINECS, IRDB
10 largest peaks:

94 999 |	45 620 |	79 590 |	46 359 |	47 249 |
15 165 |	61 124 |	48 124 |	64 116 |	96 88 |

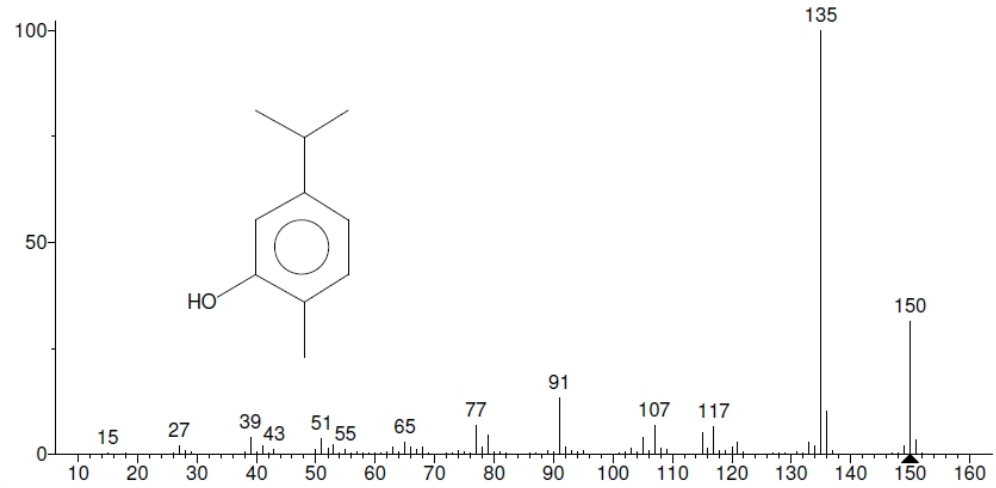
Synonyms:
1.2,3-Dithiabutane
2.Methyl disulfide
3.(Methyldithio)methane
4.Dimethyl disulfide
5.Dimethyl disulphide
6.(CH3S)2
7.UN 2381
8.DMDS
9.Sulfa-hitech
10.Sulfa-hitech 0382

PEAK 2



Name: 2-Methanesulfonylethanol
Formula: $C_3H_8O_3S$
MW: 124 CAS#: 15205-66-0 NIST#: 136250 ID#: 14550 DB: mainlib
Other DBs: Fine, EINECS
Contributor: NIST Mass Spectrometry Data Center, 1994
10 largest peaks:
45 999 | 29 361 | 27 309 | 15 297 | 81 281 |
43 219 | 79 197 | 94 191 | 63 168 | 31 141 |
Synonyms:
1.2-Hydroxyethylmethyl sulfone
2.Ethanol, 2-(methylsulfonyl)-
3.2-(Methylsulfonyl)ethanol #

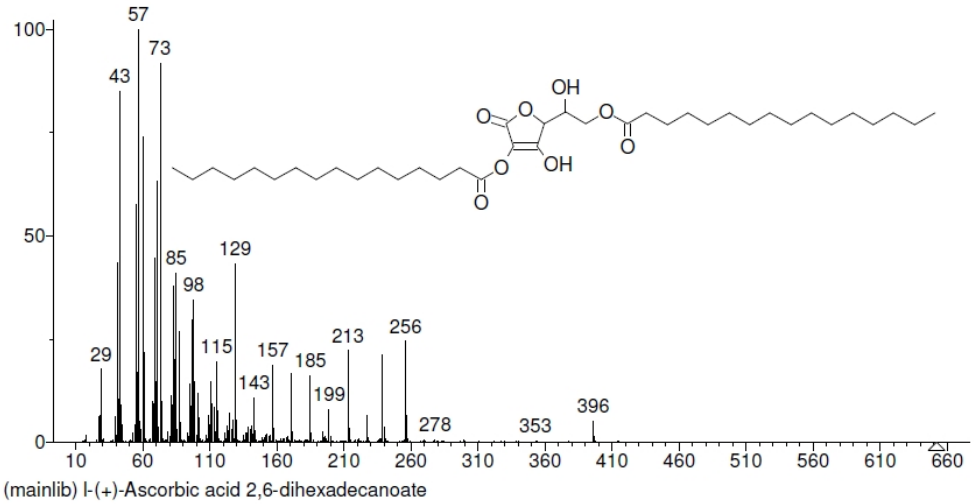
PEAK 3



(mainlib) Phenol, 2-methyl-5-(1-methylethyl)-

Name: Phenol, 2-methyl-5-(1-methylethyl)-
Formula: $C_{10}H_{14}O$
MW: 150 CAS#: 499-75-2 NIST#: 229581 ID#: 85819 DB: mainlib
Other DBs: Fine, TSCA, RTECS, EPA, HODOC, NIH, EINECS
Contributor: Japan AIST/NIMC Database- Spectrum MS-NW- 815
10 largest peaks:
135 999 | 150 314 | 91 131 | 136 102 | 77 68 |
107 67 | 117 64 | 115 50 | 79 44 | 105 39 |
Synonyms:
1.Carvacrol
2.p-Cymen-2-ol
3.Antioxine
4.Isothymol
5.Karvakrol
6.2-Hydroxy-p-cymene
7.2-Methyl-5-isopropylphenol
8.5-Isopropyl-2-methylphenol
9.2-Methyl-5-(1-methylethyl)phenol

PEAK 4

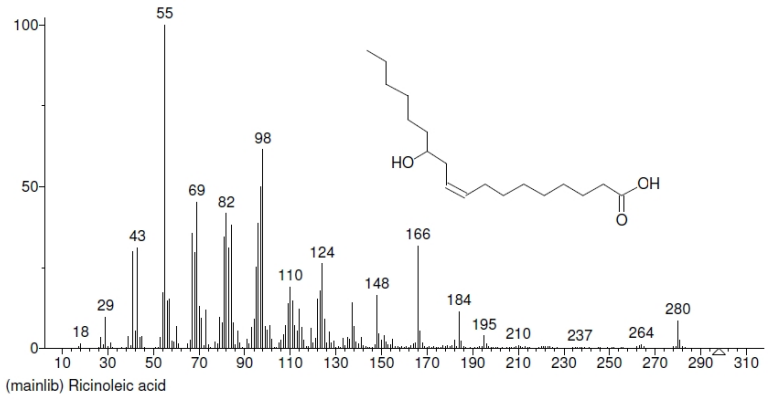


Name: l-(+)-Ascorbic acid 2,6-dihexadecanoate
Formula: $C_{38}H_{68}O_8$
MW: 652 CAS#: 28474-90-0 NIST#: 233167 ID#: 21761 DB: mainlib
Other DBs: None
Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-8860
10 largest peaks:

57 999 |	73 917 |	43 849 |	60 740 |	71 632 |
55 576 |	69 444 |	41 434 |	129 432 |	85 410 |

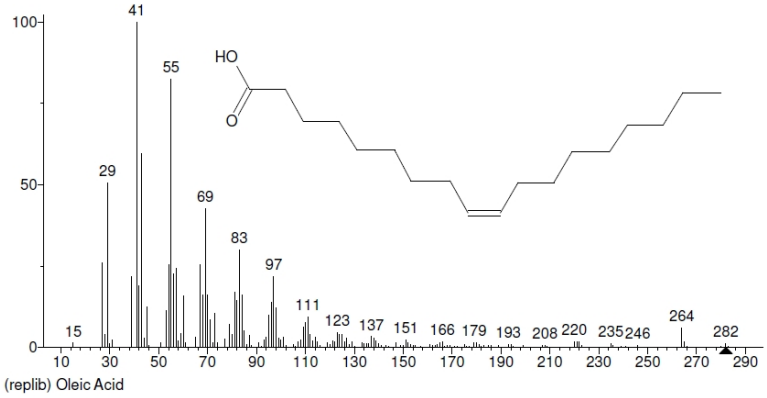
Synonyms:
no synonyms.

PEAK 5



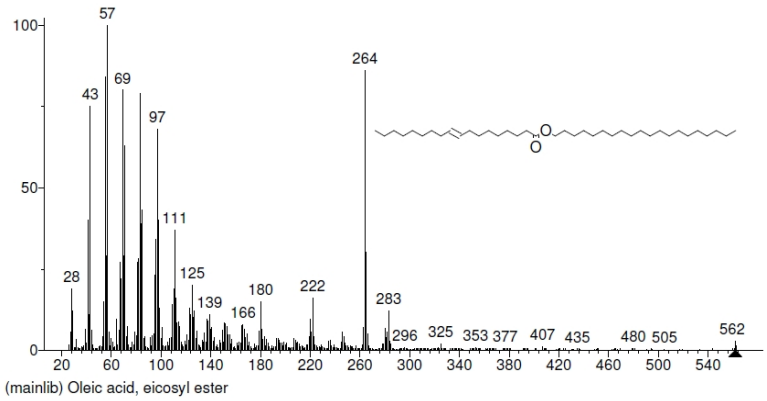
Name: Ricinoleic acid
Formula: $C_{18}H_{34}O_3$
MW: 298 CAS#: 141-22-0 NIST#: 234972 ID#: 18299 DB: mainlib
Other DBs: Fine, TSCA, RTECS, HODOC, NIH, EINECS
Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-8905
10 largest peaks:
55 999 | 98 614 | 97 498 | 69 452 | 82 416 |
96 385 | 84 380 | 67 355 | 81 344 | 166 315 |
Synonyms:
1.9-Octadecenoic acid, 12-hydroxy-, [R-(Z)]-
2.l'acide ricinoleique
3.Oleic acid, 12-hydroxy-
4.Ricinic acid
5.Ricinolic acid
6.Vespula pensylvanica b708568k062
7.12-Hydroxy-cis-9-octadecenoic acid
8.9-Octadecenoic acid,12-hydroxy-,(Z)-
9.Kyselina 12-hydroxy-9-oktadecenova

PEAK 6



Name: Oleic Acid
Formula: $C_{18}H_{34}O_2$
MW: 282 CAS#: 112-80-1 NIST#: 134027 ID#: 856 DB: replib
Other DBs: TSCA, RTECS, USP, HODOC, NIH, EINECS, IRDB
Contributor: NIST Mass Spectrometry Data Center, 1994
10 largest peaks:
41 999 | 55 824 | 43 595 | 29 504 | 69 425 |
83 299 | 27 258 | 54 254 | 67 253 | 57 241 |
Synonyms:
1.9-Octadecenoic acid (Z)-
2..delta.(Sup9)-cis-Oleic acid
3.cis-.delta.(Sup9)-Octadecenoic acid
4.cis-Oleic Acid
5.cis-9-Octadecenoic Acid
6.Emersol 211
7.Emersol 220 White Oleic Acid
8.Emersol 221 Low Titer White Oleic Acid
9.Oelsauere

PEAK 7



Biochemical analysis

Results of Acid radicals studies

S.NO	Parameter	Observation	Result
1	Test for Sulphate	No Cloudy appearance Present	Negative
2	Test for Chloride	Cloudy appearance present	Positive
3	Test For Phosphate	No Cloudy yellow appearance present	Negative
4	Test For Carbonate	-	Negative
5	Test For Nitrate	-	Negative
6	Test for Sulphide	-	Negative
7	Test For Fluoride &oxalate	-	Negative
8	Test For Nitrite	-	Negative
9	Test For Borax	-	Negative

Interpretation

The acidic radicals test shows the presence of chloride.

Results of basic radicals studies:

S.NO	Parameter	Observation	Result
1	Test for Lead	-	Negative
2	Test for Copper	-	Negative
3	Test For Aluminium	Brown colour present	Positive
4	Test For Iron	-	Negative
5	Test For Zinc	-	Negative
6	Test for Calcium	-	Negative
7	Test For Magnesium	-	Negative
8	Test For Ammonium	-	Negative
9	Test For Potassium	-	Negative
10	Test For Sodium	-	Negative
11	Test For Mercury	-	Negative
12	Test For Arsenic	-	Negative

Interpretation

The basic radical test shows the presence of **Aluminium** and absence of heavy metals such as lead, Iron, arsenic and mercury.

Miscellaneous:

S.NO	Parameter	Observation	Result
1	Test for Starch	-	Negative
2	Test for Reducing sugars	-	Negative
3	Test For Alkaloids	-	Positive
4	Test For Tannic acid	Blue-black precipitate obtained	Positive
5	Test for unsaturated compounds	-	Negative
6	Test for Amino acid	-	Negative

Interpretation

The Miscellaneous test shows the presence of **Alkaloids and Tannic acid.**

CLINICAL STUDIES

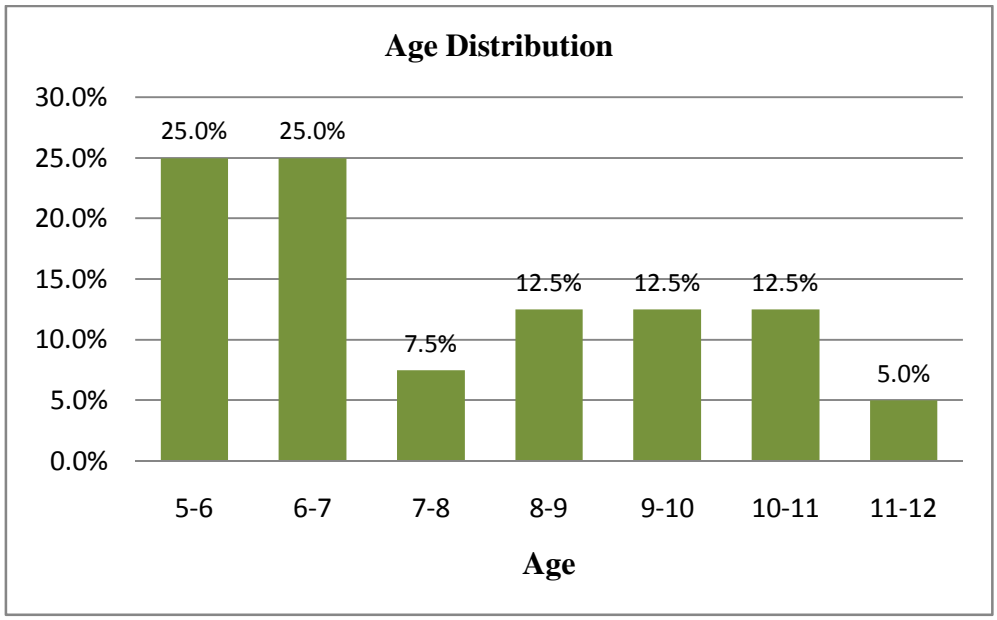
40 Patients with confirmed diagnosis of with satisfying the inclusion criteria were enrolled after obtaining written informed consent and were to receive *Mookurattai ennai* with dosage of 1.6 ml od for 3 days

Results were observed with respect to the following criteria:

1. Age
2. Sex
3. Parent's Socio Economic Status
4. Diet
5. Nilam
6. Paruvakaalam
7. Uyirthathukkal
8. Ezhuudalkattugal
9. Envagaithervugal
10. Neikuri
11. Clinical features

Table 1: Distributions of patients with Kanakazhichal according to Age

S.NO	AGE	NO.OF.CASES	PERCENTAGE%
1.	>5- <6 Years	10	25
2.	>6- <7Years	10	25
3.	>7- <8 years	3	7.5
4.	>8 -<9years	5	12.5
5.	>9- <10 years	5	12.5
6.	>10- <11years	5	12.5
7.	>11-<12 years	2	5

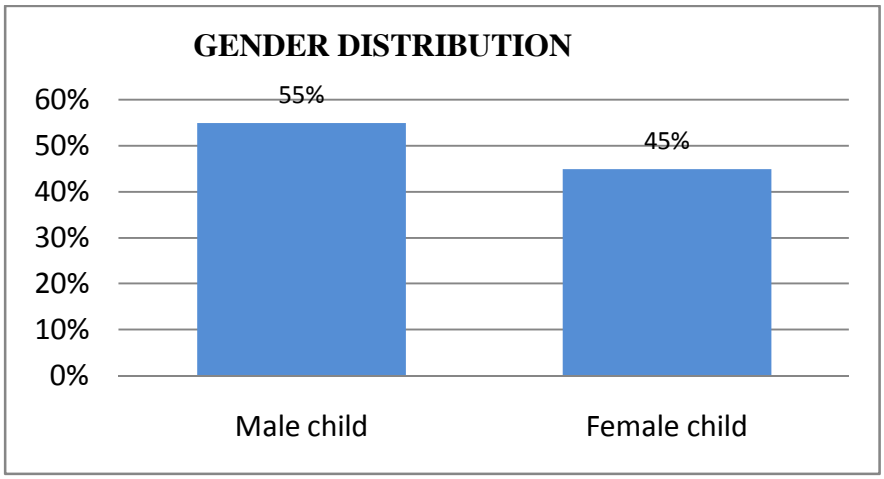


Inference:

Out of 40 patients, 25 % of cases were 5-6years, 25 % were 6-7 years, 7.5% were 7-8 years 12.5% were 8-9 years, 12.5% were 9-10 years, 12.5% were 10-11 years, 5% of cases were 11-12 years. (Table -1)

Table 2: Distribution of patients with Kanakazhichal according to Gender:

S. No	Gender	No. of cases	Percentage
1	Male child	22	55%
2	Female child	18	45%

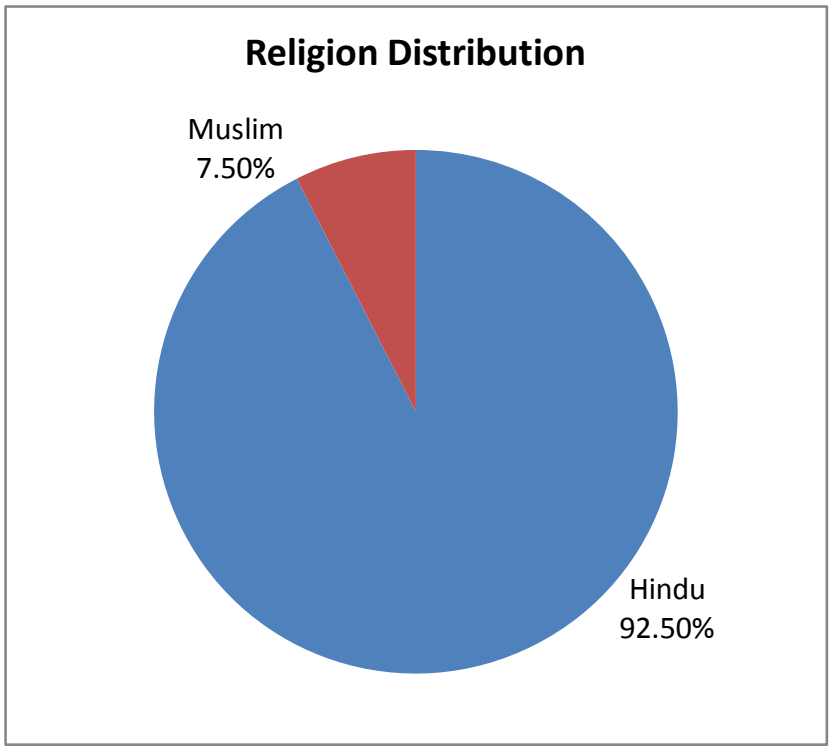


Inference:

Out of 40 patients 55% were male children and 45% were female children.

Table 3: Distribution of patients with kanakazhichal according to religion:

S.No	Religion	No of cases	Percentage
1	Hindu	37	92.50%
2	Muslim	3	7.50%
3	Christian	0	0

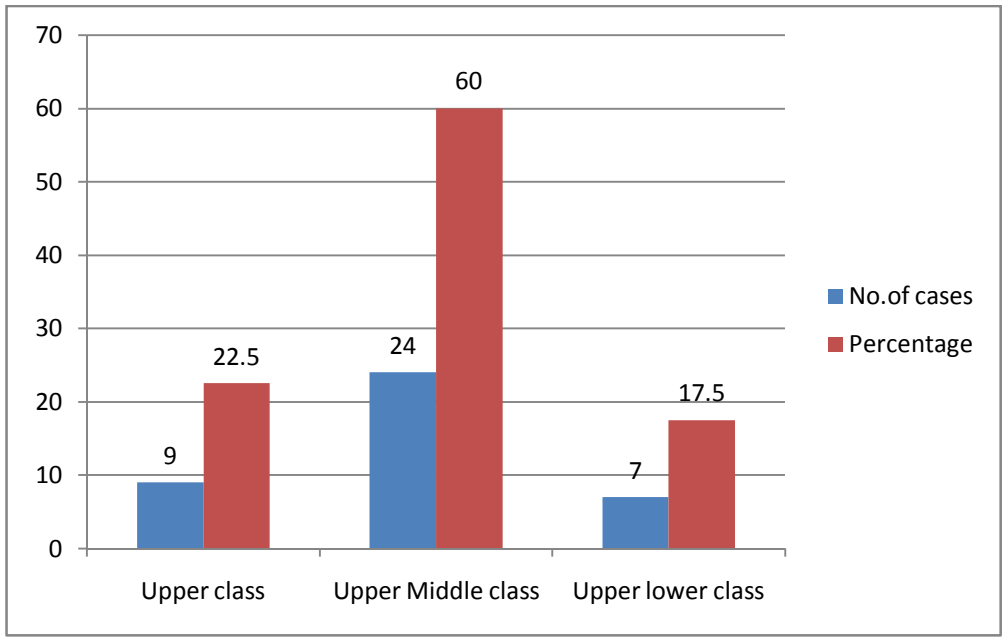


Inference:

Out of 40 Patients 7.5% cases of were muslim, and 92.5% cases of were hindu.

Table 4: Distribution of patents with Kazhichal according to socio- economic status:

S.No	Socio Economic status	No.of cases	Percentage
1	Upper class	9	22.5
2	Upper Middle class	24	60
3	Upper lower class	7	17.5

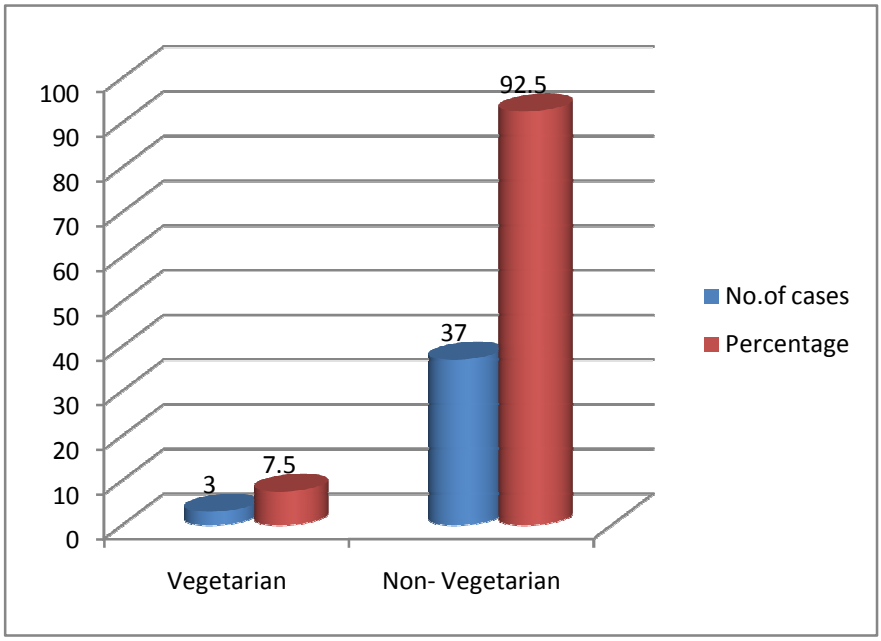


Inference:

About 17.5 % patients were under lower income group, 60% patients were under middle income group and 22.5% patients were under high income group. The highest incidence occurred in middle income group.(Table 4).

Table 5: Distribution of patients with Kanakazhichal according to diet reference:

S.No	Food habits	No.of cases	Percentage
1	Vegetarian	3	7.5
2	Non- Vegetarian	37	92.5

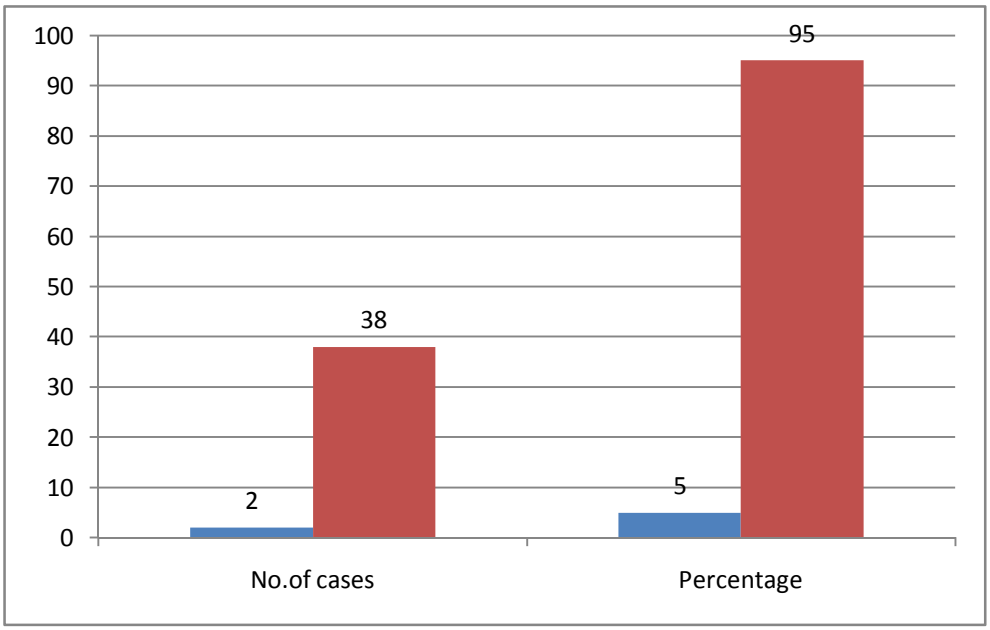


Inference:

According to diet, Vegeterian 7.5%, Mixed 92.5% were noted. (Table: 5)

Table 6: Distribution of Patients with Kanakazhichal according to Nilam:

Nilam	No.of cases	Percentage
Kurinji	0	0
Mullai	0	0
Marutham	2	5
Neithal	38	95
Paalai	0	0

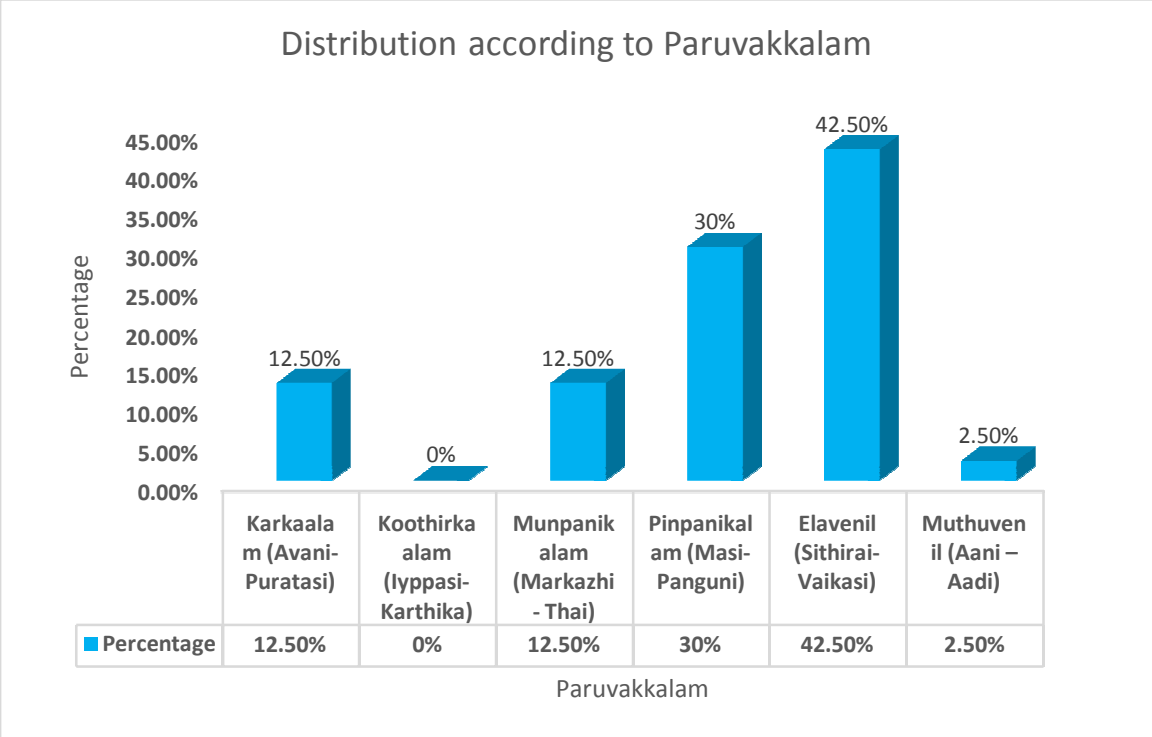


Inference:

Among 40 patients, 95 % were from Neithal land, 5 % from Marutham land (Table 6)

Table 7: Distribution of patients with Kanakazhichal according to Paruvakalangal

S.No	Paruvakalam	No.of cases	Percentage
1	Karkaalam (Avani-Puratasi)	5	12.5%
2	Koothirkaalam (Iyppasi- Karthika)	0	0%
3	Munpanikalam (Markazhi- Thai)	5	12.5%
4	Pinpanikalam (Masi- Panguni)	12	30%
5	Elavenil (Sithirai- Vaikasi)	17	42.5%
6	Muthuvenil (Aani –Aadi)	1	2.5%

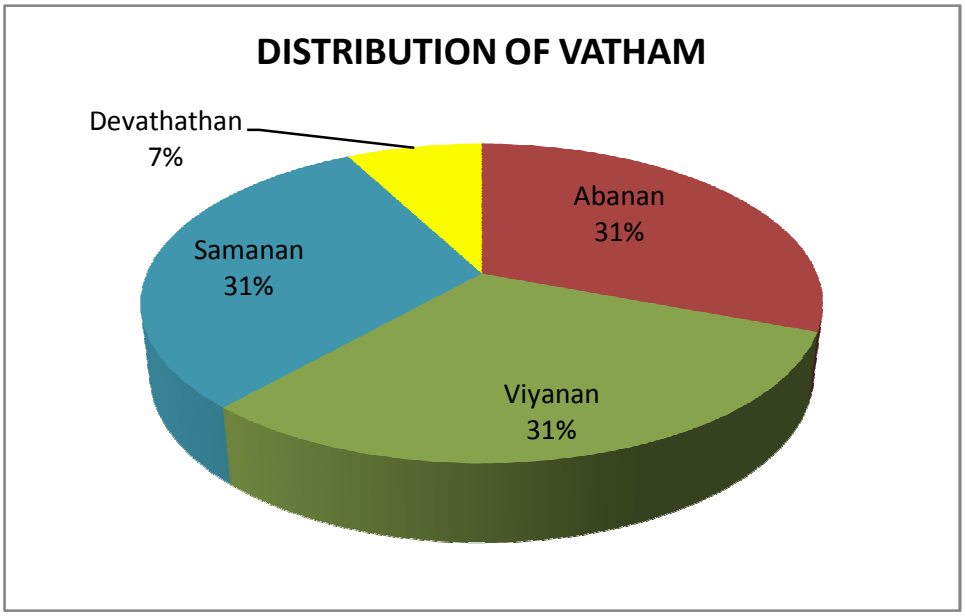


Inference:

According to elavenil kaalam, high incidence of cases42.5% were reported in Pinpanikalam,27.5% cases were reported in pinpani kalam, 2.5% cases were reported in elavenil kaalam and 2.5% were from Karkalam,elaveil kalam and kuthirkalam .(Table:7)

Table 8: Distribution of patients with Kanakazhichal according to derangement of Vatham:

S.No	Vatham	No.of cases	Percentage
1	Pieanan	0	0%
2	Ahanam	40	100%
3	Viyanam	40	100%
4	Uthanan	0	0%
5	Samanan	40	100%
6	Nagan	0	0%
7	Koortham	0	0%
8	Kirukaram	0	0%
9	Devathathan	10	25%
10	Dhanajeyam	0	0%

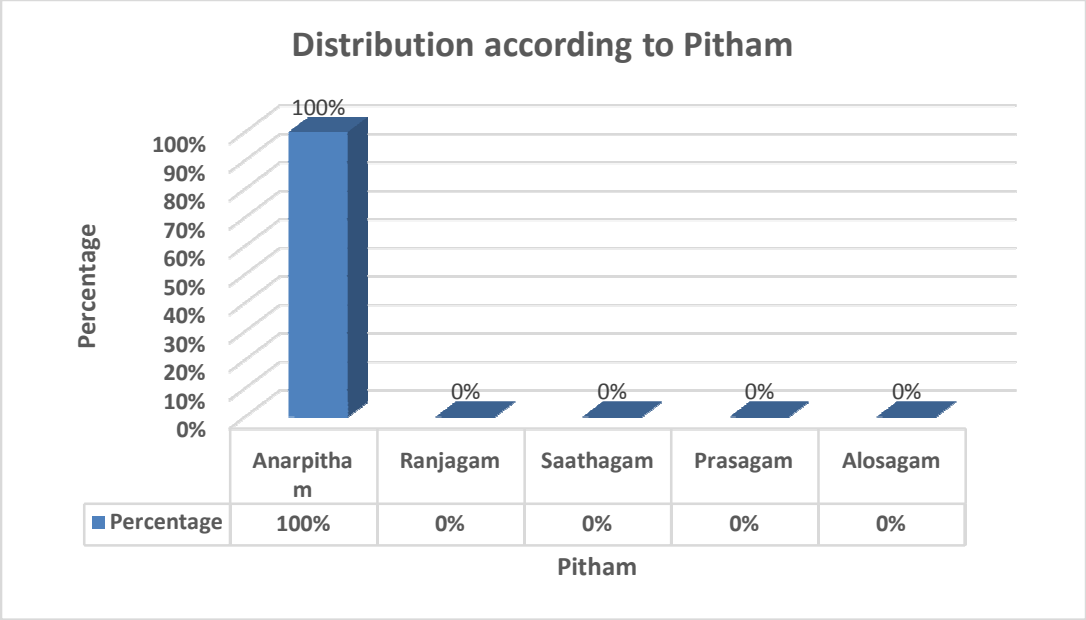


Inference:

According to vatham, derangement of Pranan was 0%, Abanan was 100%,Viyanan was 100% ,Udhanan was 0%, samaanam was affected 100 % and Devathathan was deranged in 25%%(Table 8a).

Table 8(B) : Distribution of patients with kanakazhichal according to derangement of Pitham:

S.No	Types of Pitham	No of cases	Percentage
1	Anarpitham	40	100%
2	Ranjagam	0	0%
3	Saathagam	0	0%
4	Prasagam	0	0%
5	Alosagam	0	0%

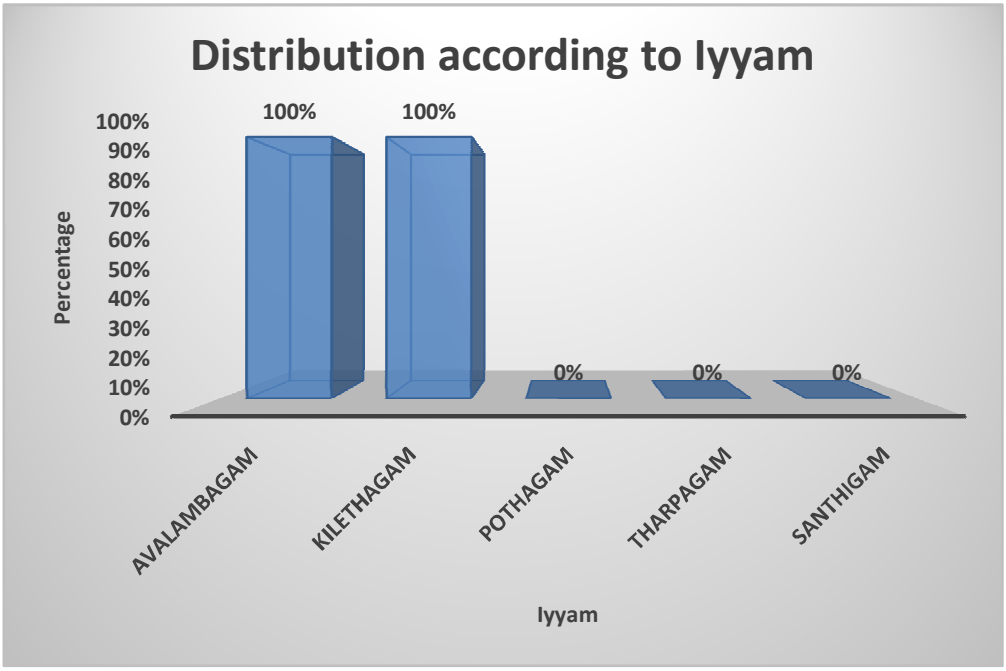


Inference:

According to Pitham, derangement of Analapitham was 100%and Ranjagam was 0% (Table 7b).

Table 8 C: Distribution of patients with kanakazhichal according to derangement of Kabam:

S.No	Types of Iyyam	No of cases	Percentage
1	Avalambagam	40	100%
2	Kilethagam	40	100%
3	Pothagam	0	0%
4	Tharpagam	0	0%
5	Santhigam	0	0%

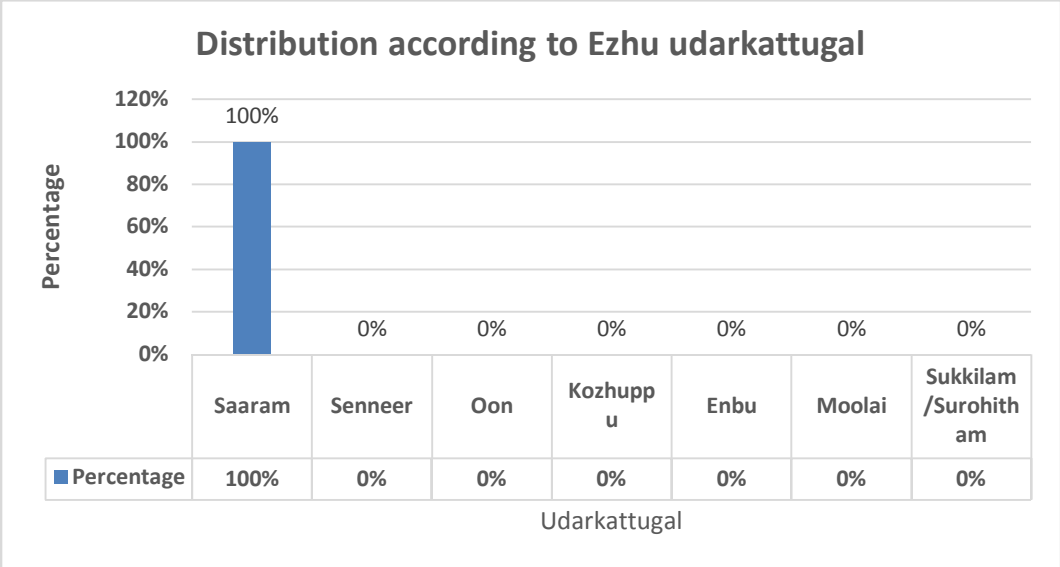


Inference :

According to Kabam, derangement of Kelathagam was deranged in 100% and Kilethagam was 100% (Table7c).

Table 9: Distribution of patients with kanakazhichal according to derangement of Ezhuudarkattugal:

S.No	Udarkattugal	No of cases	Percentage
1	Saaram	40	100%
2	Senneer	0	0%
3	Oon	0	0%
4	Kozhuppu	0	0%
5	Enbu	0	0%
6	Moolai	0	0%
7	Sukkilam/Surohitham	0	0%

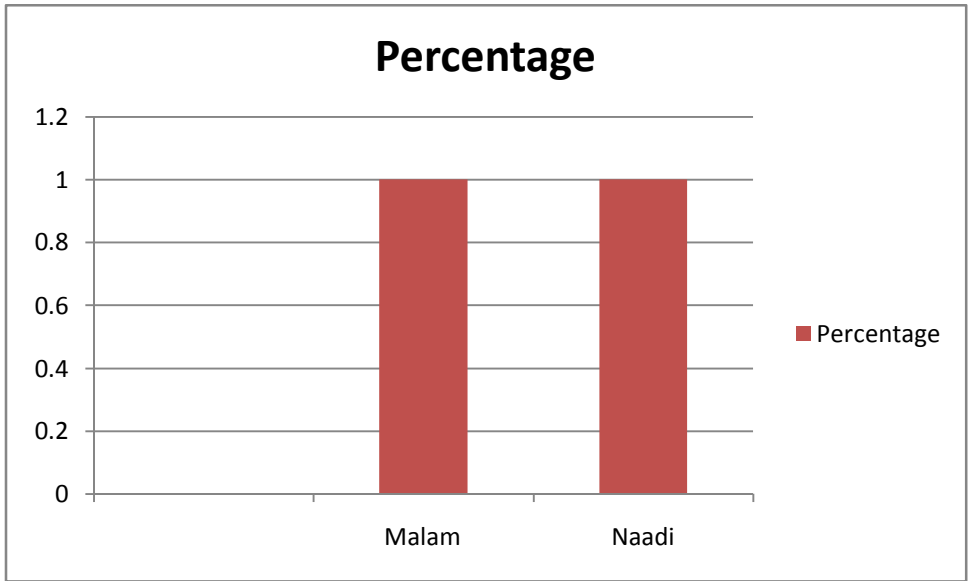


Inference:

Saram was affected in 100% of cases. (Table:9)**.**

Table 10 : Distribution of patients with kanakazhaichal according to derangement of Enn vagai thervugal:

S.No	Envagai thervugal	Percentage
1	Naa	0%
2	Niram	0%
3	Mozhi	0%
4	Vizhi	0%
5	Malam	100%
6	Moothiram	0%
7	Naadi	100%
8	Sparisam	0%



Inference:

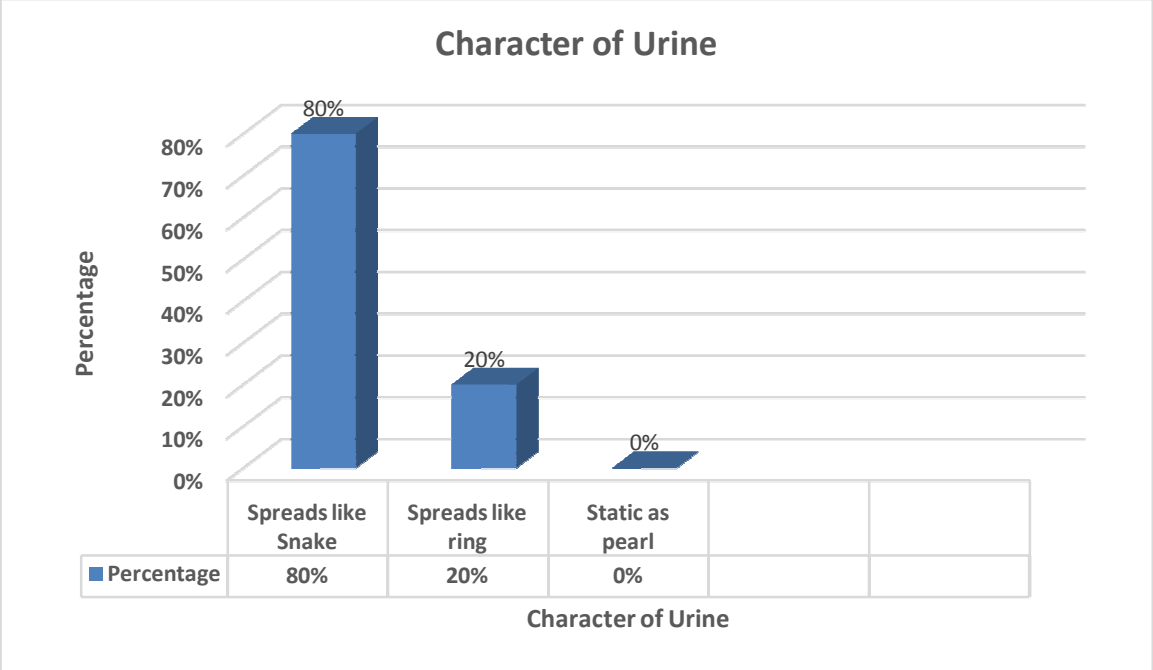
Out of 40 cases Malam was affected in100% of cases, Sparism was affected in 15% of cases ,Naa and Vizhi was affected in 10%of the cases.(Table:10)

Inference (Naadi):

In Naadi, Vathapitham was observed in 50 % of cases, Pithavatham was observed in 50 % of cases.

Table 11: Neikuri Analysis:

S.No	Character of urine	Neikuri Reference	No of cases	Percentage
1	Spreads like Snake	Vatha neer	32	80%
2	Spreads like ring	Pitha neer	8	20%
3	Static as pearl	Kaba neer	0	0%

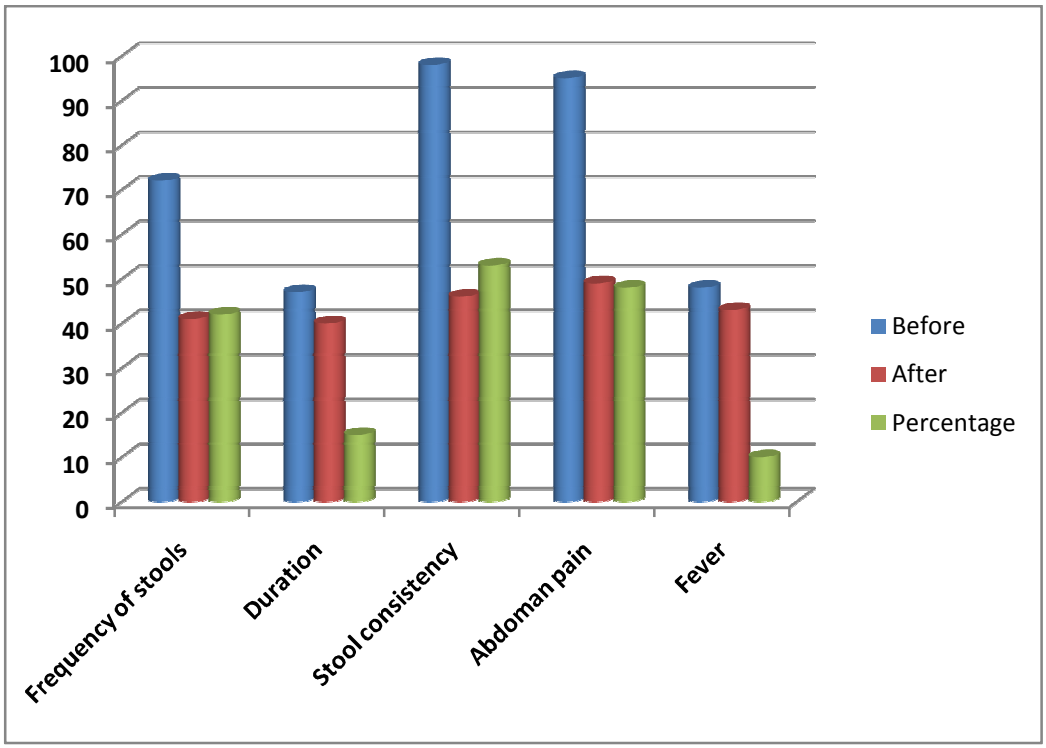


Inference

According to Neikuri, Vatha neer was observed in 80 % of cases, pitha neer was observed in 20 % of cases, of cases.(Table: 11)

Table 12: Kanakazhichal using Vesikari scoring system:

Variables	Before	After	Percentage
Frequency of stools	72	41	42
Duration	47	40	15
Stool consistency	98	46	53
Abdoman pain	95	49	48
Fever	48	43	10



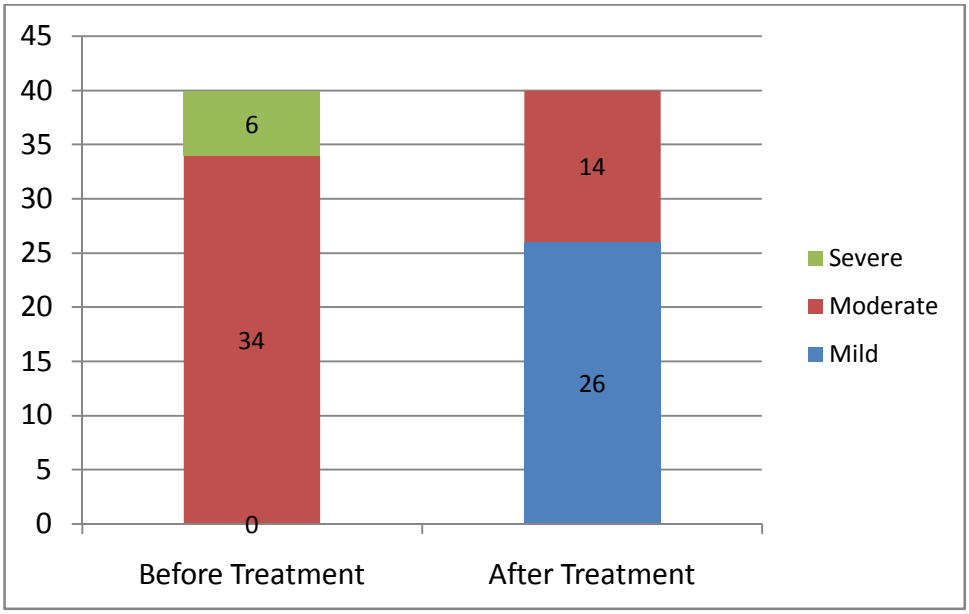
Inference

Frequencey of Stools reduced in 42 % of cases, duration reduced in 15% , Stool cibsustebct 53%, Abdominal pain reduced in 48%, Fever reduced in 10% of cases. (Table: 12)

Table:13 Kanakazhichal scoring system:

The scoring table for Kanakazhichal patients are categorized as mentioned below

Treatment	Severity Category			
	Mild	Moderate	Severe	Total
Before Treatment	0	34	6	**40**
After Treatment	26	14	0	**40**



STASTICAL ANALYSIS :

All collected data were entered into MS Excel software using different columns as variables and rows as patients. STATA software was used to perform statistical analysis. Basic descriptive statistics include frequency distributions and cross- tabulations were performed. Bar diagram, Pie charts were used to describe the value of different variables for pictorial representation. The quantity variables were expressed as Mean and standard deviation and qualitative data as percentage. A probability value of less than 0.05 was considered to indicate as statistical significance. Paired't' test was performed for determining the significance between before and after treatment.

Paired Samples Statistic

S.No		Mean	Std. Deviation	Std. Error Mean
1	Before	9.0000	1.46760	.23205
2	After	5.5000	.75107	.11875

Paired Sample Test:
Table : Clinical symptom score of Mookurattai ennai.

S.No		Paired Difference					t	sig.(2 tailed) P-Value
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval			
					Upper	Lower		
1	Before – After	3.5000	1.5021	0.2375	3.0196	3.9804	14.736	0.000

Result:

I. The mean and SD of clinical symptom score of Mookurattai ennai,before and after treatment were 9.0000+1.46760 and 5.5000+.75107 respectively which is statistically significant. (t-value 14.736,p<0.0001).

II. P<0.05- reject null hypothesis.

III. There is significance difference between before and after treatment. Thereduction of clinical symptoms is 39%.

DISCUSSION

DISCUSSION

Kana Kazhichal is a common pediatric problem.This disease has been clearly described in several siddha texts.Kanakazhichal mostly resembles in bacillary dysentery in modern aspects.This is characterised by passing loose stools with blood or mucous, fever, abdominal pain, tenesmus.

In this study several cases were treated at the out-patient P.G Kuzhandhai Maruthuvam department at National Institute of Siddha , Chennai-47. According to clinical features mentioned in siddha texts.Siddha methods of diagnosis were carried out and recorded in proforma.The diagnosis were confirmed and treated with trial drug **'Mookurattai ennai**" and clearly observed.The observations are discussed here.

The drugs which are mentioned in Siddha literature for the management of Kanakazhichal were selected and the study is conducted after the proposal was screened by the Screening committee of National Institute of Siddha and the trial was also approved by the Institutional Ethical Committee (IEC). The trial was registered in Clinical trial registry of India.

The trial drugs were prepared by the Author in the Gunapadam practical laboratory of National Institute of Siddha, after getting proper authentication of raw drugs from the Medicinal botany department at NIS, Chennai 47. The trial drug was prepared by the standard operating procedure as mentioned in the protocol.

The chemical analysis and physiochemical analysis of drugs were performed in biochemistry lab of NIS, and sathyabaama univercity, Chennai. The safety of the trial drug usage through biochemical analysis was also ensured during the study. It revealed the presence of effective minerals.

The patients were recruited for the trial based on inclusion and exclusion criteria and after getting the consent from the patient. 40 patients were included in this study. The 40 patients were treated in OPD of Ayothidoss Pandithar Hospital of National Institute of Siddha. Separate proforma was maintained for every patient. Progress chart was also maintained to monitor the clinical signs and symptoms of the disease.

The treatment was aimed at normalizing the deranged thodams and providing relief from symptoms. Before treatment the patients were advised to adapt lifestyle modifications such as oil bath weekly once and to follow good dietary regimen.

The patients were treated with trial drug MOOKURATTAI ENNAI for 3 days. Patients were instructed to take the medicines regularly and advised to follow pathiyam and to avoid intake of contaminated foods if any. Patients were asked to visit the hospital on 4th day.

After completion of the study, the patients were advised to visit the Out-Patient ward of Department of Kuzhanthai Maruthuvam for 1 month for follow-up. The results observed during the study period were discussed by the author below.

This study evaluates the effect of MOOKURATTAI ENNAI" in relieving the symptoms of *KANAKAZHICHAL*.

Incidence with refrence to age:

Out of 40 patients, 25 % of cases were 5-6years, 25 % were 6-7 years,7.5% were 7-8 years12.5% were8-9 years, 12.5% were 9-10 years,12.5%were 10-11 years,5%of cases were 11-12 years.

Incidence with refrence to sex:

Out of 40 patients55% were male children and 45% were female children.

Incidence with refrence to religion:

Out of 40% 7.5%cases of muslim,and 92.5%cases of hindu.

Incidence with refrence to socioeconomic

About 17.5 % patients were under lower income group, 60% patients were under middle income group and 22.5% patients were under high income group. The highest incidence occurred in middle income group.

Incidence with refrence to food habits:

According to diet, Vegeterian 7.5%, Mixed 92.5% were noted.

Incidence with refrence to nilam:

Among 40 patients, 95 % were from Neithal land,5 % from Marutham land, 0 % from Mullai land, and 0% from Kurinji land.

Incidence with refrence to paruvakalangal:

According to elavenil kaalam, high incidence of cases42.5% were reported in Pinpanikalam,27.5% cases were reported in pinpani kalam, 2.5% cases were reported in elavenil kaalam and 2.5% were from Karkalam,elaveil kalam and kuthirkalam .

Incidence with reference to mukkutram:

With reference to siddha texts mukkutram were analysed in the following pattern.

Vatham:

According to vatham, derangement of Pranan was 0%, Abanan was 100%,Viyanan was 100% ,Udhanan was 0%, samaanam was affected 100 % and Devathathan was deranged in 25%%.

pitham:

According to Pitham, derangement of Analapitham was 100%and Ranjagam was 0% .

kabam:

According to Kabam, derangement of Kelathagam was deranged in 100% and Kilethagam was 100% .

Incidence with refrence to Ezhuudarkattugal:

Saram was affected in 100% of cases.

Incidence with refrence to Envagaithervugal:

Out of 40 cases Malam was affected in100% of cases, Sparism was affected in 15% of cases ,Naa and Vizhi was affected in 10%of the cases.(Table:10)

Inference (Naadi):

In Naadi, Vathapitham was observed in 50 % of cases, Pithavatham was observed in 50 % of cases.

Inference (Neerkuri):

According to Neikuri, Vatha neer was observed in 80 % of cases, pitha neer was observed in 20 % of cases, of cases.

Treatment:

If the cases suffering from KanaKazhichal are not timely diagnosed and treated, it will leads to certain complications. They are ulceration of colon, weakened pulse,In modern system also the important complications explained are severe thirst, electrolyte loss, oliguria,and rectal prolapse etc.

In order to prevent the complications in the patients with KanaKazhichal and treat the patients with the trial medicine "Mookurattai ennai" was given one time a day for 3 days.

All the patients were strictly advised to follow pathiyam.They were also advised to follow personal hygiene and other preventive measures.Satisfactory improvement was reported within 3 days of commencement of the treatment.

Clinical presentation:

In the clinical trial of the 40 patients Frequency of stools reduced in 42% of cases,duration reduced in 15%,stool consistency 53%,Abdominal pain 48%,Fever10%.The clinical improvement were accurately noted and further followup was made in outpatient department.

Chemical analysis of trial medicine:

The biochemical analysis of the trial medicine showed the presence of Tannic acid, Aluminium, chioride.

Physiochemical analysis of the trial medicine:

The physio chemical analysis of the trail drug showed the presence of Loss of drying at 105^0C(%) 2.7$\pm$0.75,total ash,Ph- 6,Refractive index-1.36,Iodine value (12/g)-109.Saponification value-204,Specific gravity-0.9721.

Antibacterial Study on Mookurattai ennai:

Four organism have been studied for Antibacterial property of Mookurattai ennai. Effective against shigellasonnei, Salmonella typhi and moderately effective against E-coli and not effective against Vibrio Cholera.

SUMMARY

SUMMARY

Patients attending the OPD of NIS having the compliants of *Kanakazhichal* diagnosed clinically are the study subjects of this Clinical study. Classical symptoms of *Kanakazhichal* emphasis with the symptoms of Bacillary dysentery like Passing loose stools with blood or mucus, fever, abdominal pain, tenesmus.

The Clinical study has been approved by IEC of NIS, approval No:NIS/IEC/9/2014-15/19-26-08-2014.The trial registred in Clinical trial Registry of India with Reg .No.CTRI/2017/02/007952. The Authentication of ingredients of the trial drug was obtained from Medicinal Botanist, National Institute of Siddha, Chennai. Purification of raw drugs and preparation of trial drug was done at Gunapadam Laboratory, Department of Gunapadam, NIS Chennai.

Physicochemical analysis of trial drug was done Sathyabama University, Chennai and Phyto chemical analysis was done in Biochemistry laboratory of National Institute of Siddha, Chennai.

Clinical diagnosis of Kana Kazhichal was done on the basis of clinical features described in Kuzhandhai Maruthuvam, Siddha maruthuvam, Noi naadal and Noi mudhal naadal thiratu etc.

The etiology and clinical features of Kana Kazhichal were correlated with the etiology and clinical features of Bacillary dysentery.

Dehydrated children, children having lactose intolerance, ulcerative colitis, chronic diarrhea and child in need of emergency treatment were excluded from this study.

Siddha system of clinical methods like Envagai thervugal, Neerkuri, Neikuri were carried out in all the patients and recorded.

The trail medicine Mookurattai ennai was given internally once in a day for 3days.The dosage of the trail drug is Uchikarandialavu (1.6ml).

The observation made during the clinical study showed that the trial drug Mookurattai ennai was clinically effective (39%) for Kanakazhichal.

The Phytochemical analysis of the trial medicine showed the presence of tannic acid, aluminium and chloride.

The physio chemical analysis of the trail drug showed that Loss of drying at 105^0C(%) 2.7±0.75, total ash value 0.45±0.08, Ph-6, Refractive index-1.36, Iodine value (12/g)-109. Saponification value-204, Specific gravity-0.9721

Four organism have been studied for Antibacterial property of Mookurattai ennai. Among the 4 organism effective inhibitory actions found against shigella sonnei, Salmonella typhi and moderately effective against E-coil and not effective in Vibrio Cholera.

The parents and children were adviced to follow the preventive measures and to lead a hygienic life.

The clinical efficacy of the drug was analyzed statistically on all the symptoms mentioned in the assessment criteria. The observation made during the clinical study showed that the trail drug *Mookurattai ennai* was clinically effective(39%)

CONCLUSION

CONCLUSION

All the fourty patients (Childrens) in Dept. of Kuzhandhai Maruthuvam, National Institute of Siddha, Chennai-47 with Kanakazhichal were treated with Mookurattai ennai 1.6ml (Uchikarandialavu) once in a day for 3 days.

No adverse effects were found during the treatment period. The trial drug Mookurattai ennai is purely herbal and the raw drugs are easily available and it is harmless to childrens.

The method of preparation is easy and the cost is comparatively economical.

The drugs has got Anti bacterial action against *Shigella sonnei , Salmonella Typhi* and Moderately effective against E.Coli.

The Clinical study results were found to be good in 39%. Because of the encouraging results, the study may be undertaken with same medicine in a large number of cases further.

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ANNEXURE

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF KUZHANDHAI MARUTHUVAM

CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN.

FORM I - SCREENING

1. Sl. No: **2. OP / IP No:** **3. Name:**

4. Age: **5. Sex:** **6. Date:**

7. Informant: **8. Reliability:**

IINCLUSION CRETERIA:	YES	NO
Age: between 5-12 years	☐	☐
Frequent passing of stools with mucus at least 3 or 4 times per day	☐	☐
Fever	☐	☐
Abdominal pain	☐	☐
EXCLUSION CRITERIA:		
Child below 5 years	☐	☐
High grade fever	☐	☐
Severe dehydration	☐	☐
Extra intestinal complication	☐	☐
Chronic diarrhoea	☐	☐

ADMITTED TO STUDY

YES ☐ **NO** ☐

If Yes, OPD ☐ **IPD** ☐

Date:
Station:
Signature of the Guide

Signature of the HOD **Signature of the Investigator**

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF KUZHANDHAI MARUTHUVAM

CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN

FORM II – PATIENT INFORMATION SHEET

I, Dr.S.Arunasalam. studying as PG Scholar in department of Kuzhanthai Maruthuvam at National Institute of Siddha, doing a study on Clinical Evaluation of Mookurattai Ennai for kanakazhichal (bacillary dysentery) in children. I will maintain confidentiality of your comments and data obtained. There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. No compensation will be paid to you for taking part in this study.

You can choose not to take part. However, taking part in the study may be of benefit to the scientific community, as it may help us to understand the problem of the disease and find the potential solution.

If you agree your child to be a participant in this study, he/she will be included in the study primarily by signing the consent form and then you will be given the internal medicine Mookurattai Ennai 1.6 ml once a day at morning for 3 days.

The information I am collecting in this study will remain between you and the investigator (myself).

If you wish to find out more about this study before taking part, you can ask me directly or through my mobile number 7358306605. You can also contact the Member-secretary of Ethics committee, National Institute Siddha, Tel no: 0-44-22380789.

தேசிய சித்த மருந்துவ நிறுவனம்

அயோத்திதாச பண்டிதர் மருத்துவமனை, சென்னை-47

பட்டமேற்படிப்பு குழந்தை மருத்துவத்துறை

கணகழிச்சல் நோய்க்கு மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு

<u>படிவம் 2 தகவல் படிவம்</u>

தேசிய சித்த மருத்துவ நிறுவனத்தில் குழந்தை மருத்துவத்துறையில் பட்ட மேற்படிப்பு பயின்று வரும் மரு.சொ.அருணாசலம் ஆகிய நான் கணகழிச்சல் நோய்க்கு மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆராய்ச்சியில் ஈடுபட்டுள்ளேன். இது சம்பந்தமாக பெறப்படும் குழந்தையின் அனைத்து விவரங்களும் இரகசியமாக வைக்கப்படும் என உறுதி அளிக்கிறேன். இது போன்ற விவரங்களை தெரிவிப்பதால் தங்களுக்கோ தங்களது குழந்தைக்கோ தங்களின் வேலை தளத்திலோ எந்த ஒரு பாதிப்பும் ஏற்படாது. இதில் பயணப்படி முதலிய எந்த உதவித்தொகையும் வழங்கப்பமாட்டாது.

இந்த ஆராய்ச்சிக்கு நோயினராக சேர்ந்த பிறகு உங்களுக்கு விருப்பம் இல்லையெனில் எப்போது வேண்டுமானாலும் தங்களது குழந்தையை விலக்கிக் கொள்ளலாம். இருந்தாலும் இந்த மருத்துவ ஆய்வில் சேர்வதன் மூலமாக தங்களது குழந்தையின் நோய் குறைவது மட்டுமல்லாமல் மருத்துவத்துறை சார்ந்த வல்லுநர்களுக்கு இந்த நோய்க்கான தீர்வுகளை கண்டறிவதற்கு மிகவும் உதவியாக இருக்கும்.

இந்த ஆராய்ச்சிக்கு தங்களது விருப்பத்தின் பேரில் தங்களது குழந்தையை உட்படுத்தும் பட்சத்தில் முதலில் ஒப்புதல் படிவத்தில் கையெழுத்திட்ட பின்பு தாங்கள் தங்கள் குழந்தைக்கு உள்மருந்தாக மூக்குரட்டை எண்ணெய் 1.6 மி.லி 3 நாட்கள் ஒருவேளை காலையில் தர வேண்டும்.

இந்த மருத்துவ ஆய்வின் தொடர்பாக உங்களிடமிருந்து சேகரிக்கப்படும் அனைத்து விவரங்களும் உங்களுக்கும் ஆராய்ச்சியாளரான எனக்கும் மட்டுமே அறிந்திருக்கக் கூடியதாக இருக்கும்.

இந்த ஆராய்ச்சி சம்மந்தமாக மற்ற விபரங்களையும் நோயின் தன்மை பற்றியும் அறிவதற்கு ஆராய்ச்சியாளரான மரு.சொ.அருணாசலம் கைபேசி எண் 7358306605 தொடர்பு கொள்ளலாம். மேலும் இந்த ஆராய்ச்சி தொடர்பாக நிறுவன நீதி நெறி குழுஇ தேசிய சித்த மருந்துவ நிறுவனம்இ தொலைபேசி எண் 0-44-22380789 தொடர்பு கொள்ளலாம்.

NATIONAL INSTITUTE OF SIDDHA
AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF KUZHANDHAI MARUTHUVAM

CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN.

FORM III – (A) CONSENT FORM

CERTIFICATE BY INVESTIGATOR

I certify that I have disclosed all the details about the study in the terms readily understood by the parent/guardian

Date: **Signature:**

Station: **Name:**

CONSENT BY PARENT

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up to monitor and safeguard my son/daughter's body functions.I am aware of my right to opt my son/daughter out of the trail at any time during the course of this study without having to give the reasons for doing so.

I exercising my free power of choice, hereby give my consent to include my son/daughter as a subject in the CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANAKAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN.

Date: **Signature of the parent:**

Station: **Name:**

Signature of witness:

Name:

Relationship of the witness:

தேசிய சித்த மருந்துவ நிறுவனம்

அயோத்திதாச பண்டிதர் மருத்துவமனை, சென்னை-47

பட்டமேற்படிப்பு குழந்தை மருத்துவத்துறை

கணக்கழிச்சல் நோய்க்கு மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு

<u>ஒப்புதல் படிவம் - III (A)</u>

<u>ஆய்வாளரால் சான்றளிக்கப்பட்டது</u>

நான் இந்த மருத்துவ ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளியின் பெற்றோருக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதி அளிக்கிறேன்.

தேதி: **கைப்பம்:**

இடம்: **பெயர்:**

நோயாளியின் பெற்றோர் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறைப் பற்றியும், இந்த மருத்துவத்தை தொடர்ந்து எனது குழந்தையின் உடல் இயக்கத்தைக் கண்காணிக்கவும், அதனைப் பாதுகாக்க பயன்படும் மருத்துவ ஆய்வுகள் பற்றியும் திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானலும் என் குழந்தையை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கிறேன்.

நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு கணக்கழிச்சல் நோய்க்கான மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனை கண்டறிவும் மருத்துவ ஆய்விற்கு எனது குழந்தையை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி: **பெற்றொர் கையொப்பம்:**

இடம்: **பெயர்:**

சாட்சிக்காரர் கையொப்பம்:

பெயர்:

சாட்சிக்காரர் உறவு முறை:

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CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN

FORM - III(B) ASSENT FORM (By Patient)

I, _____ understand that my parents_____ (mom and dad)/ guardian have/ has given permission (said it's okay) for me to take part in this study entitled "CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANAKAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN" done by Dr.S.Arunasalam.

I am taking part because I want to take part. I have been told that I can stop at any time. I want to do so and nothing will happen to me if I want to stop.

Date:

Signature of the patient:

Station:

Name:

Signature of the parent:

Name:

Signature of the witness:

Name:

Relationship of the witness:

தேசிய சித்த மருந்துவ நிறுவனம்

அயோத்திதாச பண்டிதர் மருத்துவமனை, சென்னை-47

பட்டமேற்படிப்பு குழந்தை மருத்துவத்துறை

கணக்கழிச்சல் நோய்க்கு மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு

ஒப்புதல் படிவம்- III (B) குழந்தைக்கானது

¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯ ஆகிய நான் தேசிய சித்த மருத்துவ நிறுவனத்தில் பட்டமேற்படிப்பு குழந்தை மருத்துவத்துறையில் பயிலும் மரு.சொ.அருணாசலம் அவர்களால் நடத்தப்படும் கணக்கழிச்சல் நோய்க்கு மூக்குரட்டை எண்ணெயின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வில் பங்கேற்பதற்கு எனது பெற்றோர்.˙.காப்பாளர் திரு.˙.திருமதி.¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯¯ சம்மதம் தெரிவித்திருப்பதை நன்கு அறிவேன்.

எனக்கு இந்த ஆராய்ச்சி பற்றி புரியும் வகையில் எடுத்துரைக்கப்பட்டுள்ளது. இவ்வாராய்ச்சியில் இருந்து எப்போது வேண்டுமானாலும் விலக எனக்கு உரிமை இருக்கின்றது என்பதை பற்றியும் நன்கு தெரிந்து கொண்டு இந்த ஆராய்ச்சியில் பங்கேற்க சம்மதிக்கிறேன்.

தேதி:

இடம்:

குழந்தையின் கையொப்பம்:

பெயர்:

பெற்றொர் கையொப்பம்:

பெயர்:

சாட்சிக்காரர் கையொப்பம்:

பெயர்:

சாட்சிக்காரர் உறவு முறை:

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CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN

FORM IV-CASE REPORT FORM

HISTORY TAKING

OP/IP No.	**Visit Date : (__/__/____)**
Name :	
Age :	
Gender : Male child ☐ **Female child ☐**	**Date Of Birth : (__/__/____)**
Father/ Mother /Guardian Name :	
Father's Occupation :	
Father's Monthly Income :	
Religion :	
Socioeconomic Status :	
Informant :	
Postal Address	
Contact No :	

Complaints and Duration:
Present illness:

History of Past Illness

History /Symptoms/Signs	Yes	No	If, Yes Details
Bronchial Asthma	☐	☐	_____
Dust Allergy	☐	☐	_____
Hospitalization	☐	☐	_____
Any other illness	☐	☐	_____

Family History

Any Hereditary/ Familial Disease Yes ☐ No ☐

If Yes, Details _____

Immunisation History

Proper Immunization given Yes ☐ No ☐ _____

Food habits:

1. Veg ☐ 2. Non-Veg ☐

Personal habits:	Yes	No
1. Picca	☐	☐
2. Nail biting	☐	☐
3. Bowel movements	☐	☐

Nilam:

General Examination	YES	NO
1. Pallor	☐	☐
2. Jaundice	☐	☐

3. Cyanosis ☐ ☐
4. Clubbing ☐ ☐
5. Pedal oedema ☐ ☐
6. Lymphadenopathy ☐ ☐

Vital signs:

1. Pulse rate / minute
2. Heart rate / minute
3. Respiratory Rate / minute
4. Temperature

Anthropometry:

Height-

Weight-

Systemic Examination :

Gastro Intestinal System:

INSPECTION:

Shape of the Abdomen: Normal/Fullness/Distended/Scaphoid

Abdominal movements : Inspiratory/Expiratory

Scars : Present/Absent

Umblicus : Normal/Inverted/Everted

Visible veins : Present/Absent

Peristaltic waves : Present/Absent

Pulsations : Yes/No

Groin/Scrotum : Normal/Affected

PALPATION:

Tenderness : Present/Absent

Palpable mass : Present/Absent

Enlargement : Present/Absent

PERCUSSION:

Shifting dullness : Present/Absent

Fluid Thrill : Present/Absent

AUSCULTATION:

Bowel Sound : Absent/Normal/Increased/Decreased

OTHER SYSTEM:	**Normal**	**Affected**	
Cardio vascular system :	☐	☐	_____
Respiratory system :	☐	☐	_____
Musculoskeletal system :	☐	☐	_____
Central nervous system :	☐	☐	_____
Endocrine system :	☐	☐	_____

CLINICAL EXAMINATION;

S.NO	CLINICAL SYMPTOMS	1st DAY
1	Frequency of loose stools	
2	Stool consistency	
3	Abdominal pain	
4	Fever	

SIDDHA BASED EXAMNATION:

Kaalam

Kaarkalam ☐	Koothirkaalam ☐	Munpanikaalam ☐
Pinpanikaalam ☐	Illavenirkaalam ☐	Muthuvenirkaalam ☐

Yaakai

Vatham ☐	Vatha Pitham ☐	Vatha Kabam ☐
Pitham ☐	Pitha vatham ☐	Pitha Kabam ☐
Kabam ☐	Kaba Vatham ☐	Kaba Pitham ☐

Gunam

Sathuvam ☐	Rasatham ☐	Thamasam ☐

Pori / Pulangal

	Normal	Affected	Normal	Affected	Remarks
Mei / unarvu	☐	☐	☐	☐	_____
Vaai / suvai	☐	☐	☐	☐	_____
Kan / paarvai	☐	☐	☐	☐	_____
Mooku / naatram	☐	☐	☐	☐	_____
Sevi / olli	☐	☐	☐	☐	_____

Kanmendhirium / Kanmavidayam

	Normal	Affected	Normal	Affected	Remarks
Kai / dhanam	☐	☐	☐	☐	_____
Kaal / ghamanam	☐	☐	☐	☐	_____
Vaai / vaaku	☐	☐	☐	☐	_____
Eruvaai / visarkam	☐	☐	☐	☐	_____
Karuvaai / Aanantham	☐	☐	☐	☐	_____

Uyir Thathukkal

Vatham

	Normal	Affected	Remarks
Pranan	☐	☐	_____
Abanan	☐	☐	_____
Viyanan	☐	☐	_____
Uthanan	☐	☐	_____
Samanan	☐	☐	_____
Nagan	☐	☐	_____
Koorman	☐	☐	_____
Kirukaran	☐	☐	_____
Devathathan	☐	☐	_____
Dhanajeyan	☐	☐	_____

Pitham

	Normal	Affected	Remarks
Analagam	☐	☐	_____
Ranjagam	☐	☐	_____
Saathagam	☐	☐	_____
Alosagam	☐	☐	_____
Prasagam	☐	☐	_____

Kabam

	Normal	Affected	Remarks
Avalambagam	☐	☐	_____
Kilethagam	☐	☐	_____
Pothagam	☐	☐	_____
Tharpagam	☐	☐	_____
Santhigam	☐	☐	_____

Udalthathukkal

	Normal	Affected	Remarks
Saaram	☐	☐	_____
Senneer	☐	☐	_____
Oon	☐	☐	_____
Kozhuppu	☐	☐	_____
Enbu	☐	☐	_____
Moolai	☐	☐	_____
Sukilam / Suronitham	☐	☐	_____

Envagai Thervugal

	Normal	Affected	Remarks
Naa	☐	☐	_____
Niram	☐	☐	_____
Thanmai	☐	☐	_____
Suvai	☐	☐	_____
Niram	☐	☐	_____
Mozhi	☐	☐	_____

Vizhi

Niram	☐	☐	_____
Thanmai	☐	☐	_____
Paarvai	☐	☐	_____
Sparisam	☐	☐	_____

Malam	**Normal**	**Affected**
Niram	☐	☐
Nurai	☐	☐
Elagal	☐	☐
Erugal	☐	☐

Moothiram

Neerkuri	**Normal**	**Affected**
Niram	☐	☐
Edai	☐	☐
Nurai	☐	☐
Manam	☐	☐
Enjal	☐	☐

Neikuri

Vatham ☐

Pitham ☐

Kabam ☐

Otherpattern ☐

Naadi:

Vadham	☐	Pitham	☐	Kabam	☐
Vatha pitham	☐	Pitha vatham	☐	Pitha kabam	☐
Vatha kabam	☐	Kaba vatham	☐	Kaba pitham	☐

DIAGOSIS : _____

CLINICAL ASSESMENT (By modified vesikari scoring system)

S.NO	CLINICAL SYMPTOMS	Before treatment	After treatment
1	Frequency of loose stools		
2	Stool consistency		
3	Abdominal pain		
4	Fever		

Station:

Signature of the Guide **Signature of the Investigator**

Date:

Signature of the HOD

NATIONAL INSTITUTE OF SIDDHA

AYOTHIDOSS PANDITHAR HOSPITAL, CHENNAI – 600 047.

DEPARTMENT OF KUZHANDHAI MARUTHUVAM

CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL

(BACILLARY DYSENTERY) IN CHILDREN.

FORM V – DRUG COMPLIANCE

1. Sl. No: **2. OP / IP No:** **3. Name:**

4. Age: **5. Sex:** **6. Date:**

7. Informant: **8. Reliablity:**

NAME OF THE DRUG : MOOKURATTAI ENNAI

FORM OF THE DRUG : LIQUID

ADMINISTRATION : PER ORAL

DOSE & DURATION : 1.6 ml (OD)FOR 3 DAYS

DAY	DATE OF DRUG INTAKE	MORNING
DAY 1		
DAY2		
DAY 3		

Date:

Station: Signature of Principal Investigator:

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CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANA KAZHICHAL (BACILLARY DYSENTERY) IN CHILDREN

FORM VI: WITHDRAWAL

1. Sl. No: **2. OP / IP No:** **3. Name:**

4. Age: **5. Sex:** **6. Date:**

7. Informant: **8. Reliablity:**

Date of trial commencement :

Date of withdrawal from trial :

Reason(s) for withdrawal :

Long absence at reporting : Yes / No

Irregular treatment : Yes / No

Shift of locality : Yes / No

Complication /Adverse reactions if any : Yes / No

Exacerbation of symptoms : Yes / No

Patient not willing to continue : Yes / No

Date:

Station:

Signature of the Guide **Signature of the Investigator**

Signature of the HOD

NATIONAL INSTITUTE OF SIDDHA

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DEPARTMENT OF KUZHANDHAI MARUTHUVAM

A CLINICAL EVALUATION OF MOOKURATTAI ENNAI FOR KANAKAZHICHAL IN CHILDREN.

FORM VII-ADVERSE REACTION

1. S.l. No:	2. OP/ IP No :	3. Name:
4. Age:	5. Gender:	6. Date of Enrollment:
7. Date of completion:	8. Informant:	9. Reliablity:

Name :

Age :

Gender :

OPD/ IPD No :

Registration No :

Date of trial commencement :

Date of withdrawal from trial :

Description of adverse reaction :

Date: Signature of Principal Investigator

1. Patient / consumer identification (please complete or tick boxes as appropriate)

NATIONAL PHARMACOVIGILANCE PROGRAMME FOR SIDDHA DRUGS

Reporting Form for Suspected Adverse Reactions to Siddha Drugs

Please note:

i. All consumers / patients and reporters information will remain confidential.

ii. It is requested to report all suspected reactions to the concerned, even if it does not have complete data, as soon as possible.

1.Peripheral Center code: **State:**

Name	**Father name**	**Patient / Record No.**
Ethnicity	**Occupation**	
Address **Village / Town** **Post / Via** **District / State**		**Date of Birth / Age:** **Sex: Male / Female** **Weight :** **Degam:**

2. Description of the suspected Adverse Reactions (please complete boxes below)

Date and time of initial observation		**Season:**
Description of reaction		**Geographical area:**

3. List of all medicines / Formulations including drugs of other systems used by the patient during the reporting period:

Medicine	Daily dose	Route of administration & Vehicle – Adjuvant	Date		Diagnosis for which medicine taken
			Starting	Stopped	
Siddha					
Any other system of medicines					

5. Brief details of the Siddha Medicine which seems to be toxic :

Details	Drug – 1	Drug – 2	Drug – 3
a) Name of the medicine			
b) Manufacturing unit and batch No. and date			
c) Expiry date			
d) Purchased and obtained from			
e) Composition of the formulation / Part of the drug used			

a) Dietary Restrictions if any

b) Whether the drug is consumed under Institutionally qualified medical supervision or used as self medication.

c) Any other relevant information.

5. Treatment provided for adverse reaction:

6. The result of the adverse reaction / side effect / untoward effects (please complete the boxes below)

Recovered:	**Not recovered:**	**Unknown:**	**Fatal:**	**If Fatal** **Date of death:**
Severe: Yes / No.	**Reaction abated after drug stopped or dose reduced:**			
	Reaction reappeared after re introduction:			

Was the patient admitted to hospital? If yes, give name and address of hospital	

7. Any laboratory investigations done to evaluate other possibilities? If Yes specify:

8. Whether the patient is suffering with any chronic disorders?

Hepatic Renal Cardiac Diabetes Malnutrition

Any Others

9. H/O previous allergies / Drug reactions:

10. Other illness (please describe):

11. Identification of the reporter:

Type (please tick): Nurse / Doctor / Pharmacist / Health worker / Patient / Attendant / Manufacturer / **Distributor / Supplier / Any others (please specify)**
Name
Address:
Telephone / E – mail if any :

Date: **Signature of the reporter:**

Please send the completed form to:

Name & address of the RRC-ASU / PPC-ASU	**The Director,** **National Institute of Siddha,** **(Pharmacovigilance Regional Centre For Siddha Medicine),** **Tambaram Sanatorium, Chennai-600 047.** **☎ (O) 044-22381314 Fax : 044 – 22381314** **Website : www.nischennai.org** **Email: nischennaisiddha@yahoo.co.in**

* * * *

The Tamil Nadu Dr.M.G.R.Medical University

69,Anna Salai,Guindy,Chennai - 600 032.

This Certificate is awarded to Dr/Mr/Mrs.....S.:...Arunasalam.....

for participating as ~~Resource~~ ~~Person~~ / Delegate in the Nineteenth Workshop on

" RESEARCH METHODOLOGY & BIOSTATISTICS "

*For **AYUSH Post Graduates & Researchers***

Organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University from 07 th to 11 th September 2015.

Dr.N.KABILAN, M.D.(Siddha)
READER,DEPT.OF SIDDHA

Prof. **Dr.P.ARUMUGAM,** M.D.,
REGISTRAR I/C

Prof. **Dr.D.SHANTHARAM,** M.D., D.Diab.,
VICE CHANCELLOR

NATIONAL INSTITUTE OF SIDDHA
राष्ट्रीय सिद्ध संस्थान
Department of AYUSH- MINISTRY OF HEALTH & FAMILY WELFARE
आयुष विभाग - स्वास्थ एवं परिवार कल्याण मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार
TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियम चेन्नई -600 047
फ़ोन\Tele : 044-22411611 फैक्स\Fax : 22381314
ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F.No.NIS/6-20/IEC/15-16 Dt: 05.10.2015

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator:Dr.S.Arunasalam, Department of Kuzhandhai Maruthuvam	
Protocol title: A Clinical Evaluation of "MOOKURATAI ENNAI" a Siddha Drug in the treatment of "KANA KAZHICHAL" (Bacillary Dysentery) in Children.	
Documents filed	1) Protocol, 2) Data Collection forms 3) SAE(Pharmacovigilance)
Clinical trial Protocol (others – Specify)	Yes
Informed consent documents	Yes
Any other documents	-
Date of IEC approval & its number	NIS/IEC/9/2014-15/19 – 26.08.2015

We approve the trial to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study.

Chairman Member Secretary

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

BOTANICAL CERTIFICATE

Certified that the following plant drugs used in the Siddha formulation **"Mookurattai Ennai"** (Internal) taken up for Post Graduation Dissertation studies by **Dr.S.Arunasalam** M.D.(S), III year, Department of Kuzhanthai Maruthuvam, 2017, are identified through Visual inspection, Experience, Education & Training, Organoleptic characters, Morphology and Taxonomical methods as

Boerhavia diffusa Linn. (Nyctaginaceae), Leaf and Root
Trianthema decandra Linn. (Ficoidaceae), Root
Cardiospermum halicacabum Linn. (Sapindaceae) Stem
Elytraria acaulis (L.f.) Lindau, (Acanthaceae) Leaves
Hybanthus enneaspermus (L.F). MUELL. (Violaceae), Entire plant
Indigofera linnaei Ali. (Fabaceae), Whole plant
Ricinus communis Linn. (Euphorbiaceae), Seed oil

MEDICINAL BOTANY ★ CHENNAI 600 047 ★ National Institute of Siddha

Certificate No: NISMB2792017

Date: 06-03-2017

Authorized Signatory
Dr. D. ARAVIND, M.D.(s),M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai - 600 047, INDIA

FRONTIER MEDIVILLE

(A Unit of FRONTIER LIFELINE HOSPITAL & Dr.K.M.CHERIAN HEART FOUNDATION)

Elavur/Edoor Village, Gummidipoondi Taluk, Thiruvallur District, Tamilnadu, India - 601 201. Tel : +91 44 27940001/ 15

V CME - A V CANAL & E C DEFECTS

This is to certify that Dr. S. Aruna salam NIS

has participated in the V C M E and Work Shop Programme conducted under the auspices of the Maurice Lew & Saroja Bharati International Centre of Excellence in Cardiac Pathology held at Frontier Mediville on 20th August 2016 on 'Common Atrioventricular (AV) Orfice - Canal, Anatomic variations and surgical significance'

Dr. K.M.Cherian
Chairman & CEO
Frontier Lifeline Hospital

Dr.Saroja Bharati
Prof. Pathology Rush Medical University
Chicago, USA

Dr. Sarasa Bharati
HOD Pathology & Advisor - Academics
Frontier Lifeline Hospital

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The Tamil Nadu Dr. M.G.R. Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

CONTINUING EDUCATION PROGRAMME ACCREDITATION CERTIFICATE

This is to certify that COMMON ATRIOVENTRICULAR (AV) ORIFICE - CANAL - ANATOMIC VARIATIONS AND SURGICAL SIGNIFICANCE provided by FRONTIER LIFELINE PVT. LTD, CHENNAI on 20.08.2016 has been accredited by the Continuing Education Programme Accreditation Committee. This academic activity is awarded with 05 Credit Points in the Category III

REGISTRAR &
Secretary, CEP Accreditation

Prof. Dr. S. GEETHALAKSHMI, M.D., Ph.D.,
Vice-Chancellor